

# ON THE LIMIT:

## **The Experience and Representation of Boundaries in Architecture & Urban Design**



Thesis submitted in partial fulfilment of the requirements of  
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## **Abstract**

Architects often draw a line around the boundary of a site on a plan to demarcate a part of the world that is subject to design, or delineate legal ownership. Yet, in human experience, that line is frequently imperceptible as a presence on the ground. People often perceive that when they move from one place to another, sometimes in close proximity, there is not a clear sense of a definite line that separates one from another. These limits in urban design and architecture are complex, made manifest in multiple ways, yet architectural representation rarely captures their richness. This thesis explores the delineation of such limits in relation to their representation in architecture and urban design. It draws from phenomenological methods to analyse limits as “experienced” in the world, and from design research methods, by exploring the architectural drawing of limits. It thus constitutes phenomenological design research.

A working definition of the experiential limit in urban design and architecture is provided, based on a review of key urban design thinkers in relation to the limit, accounts of the experience of limits in two urban case studies and one landscape case study, and a review of the idea of the limit in philosophy, anthropology and socio-political literature. The limit is defined as recognisable, inhabitable, spatio-temporal, reflective and contested, resulting in a strip which can be characterised as ‘topological’. This strip constitutes what might be called a double limit, which simultaneously separates and joins, and is asymmetrical, ambiguous and fluctuating. Thereafter, this working definition of the limit is tested against drawn representations of limits with further reference to the case studies, following a review of conventions of architectural representation. The limit is recognised as inherent in the line, which characterises architectural representation, despite lines not being experienced beyond the drawing. The line, through the experience of drawing, explores and articulates attributes of the limit and how these operate, further refining the definition of the experiential limit.

The thesis concludes that this idea of limit which “has made space for” is no longer negative, restrictive or obstructive – as in the conventional definition of “limiting” – but instead positive, imagined conceptually as a space from which to look outwards, mediate, multiply, and examine. Indeed, the idea of “limiting”, conceived in this way, as a design process, opens-up opportunities for alternative ways to imagine urban design, architecture, spaces, and the conceptualisation of the act and outcomes of the design process.

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# Introduction





## Statement of Aim and Objectives

Most architects draw a line around the boundary of a site on a plan to demarcate a part of the world that is subject to design, or to delineate legal ownership. Yet, in human experience, that line is frequently imperceptible as a presence on the ground. Alternatively, people read very different places in the world, often in close proximity, perceiving that they move from one to another, without a clear sense of there being a definite line that separates one from the other. Architects and urban designers often find it difficult to encapsulate such palpably present, but ambiguous, limits straightforwardly in drawing. The commonplace experiences of these difficulties of limit, in drawing and in human experience of the world, are seldom analysed.

This thesis aims to examine how the delineation of limits is experienced in the world in relation to how they are delineated in architectural and urban design drawing. To do this, it pursues five objectives:

1. Frameworks for analysing the world outwards from experience – what might be called ‘phenomenological’ methods will be introduced.
2. Frameworks for examining drawing, through the process of drawing, from the methods of design research will also be introduced.
3. Literature on the idea of the limit will be surveyed, tested in relation to three case studies of places where boundaries are experienced in distinctive ways, and a working definition of the limit will be proposed.
4. Literature on conventions of architectural representation with regard to the limit will be surveyed, tested through attempts to draw boundaries in relation to the same three case studies, and conclusions drawn about the experience and practice of representing limits in architecture and urban design.
5. Conclusions will be drawn on the delineation of limits in architectural and urban design drawing in relation to how the delineation of limits is experienced in the world.

The aim of this research, and its objectives, begin with two propositions drawn from existing literature:



## The Experience of Limits is Complex and Multiple

*The first proposition is that we – dwellers – experience limits everyday while we dwell,<sup>1</sup> and these limits are complex and are manifested in multiple ways.* This thesis concentrates on limits in the world experienced physically and visually. They may involve moving between domestic and collective domains, private and public realms, inside and outside, the street and the boulevard, and so on. Thus, our journeys are constructed through an amalgamation of spaces and places where the limit is implicit. Some are subtle and well-integrated and consequently difficult to perceive as limits per se, becoming invisible<sup>2</sup> to our eyes and intangible *a priori*. Whereas others are visible or have more presence,<sup>3</sup> being distinctive and noticeable or repetitive. All limits, in some way or another, influence the way we move through, experience and understand the environment.

To exemplify the kind of limit I am concerned with, I present here an imaginary<sup>4</sup> but ordinary and perhaps familiar example to most of us, the experience of accessing a public building:

*We<sup>5</sup> walk on the street along the pavement. The façade of the building defines where an inside and a pavement ends or begins and acts as the limit on one side. The edge of the pavement, the kerb, on the other side defines the end and beginning of the pavement and the kerb itself articulates a small but symbolic change of level that may be challenging for some. Hence, in this precise moment, this is our place<sup>6</sup> from which we read the environment; we walk, touching and*

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<sup>1</sup> Phenomenological writing often uses "we" to involve the reader with the writer's account of their own experience. One famous example is Martin Heidegger's essay, 'Building, Dwelling, Thinking', published in his book, *Poetry, Language, Thought* (New York: Harper Colophon, 1971), pp.141-160.

<sup>2</sup> Invisible is used in a metaphorical sense as I am referring to limits that are physical but because I encounter them frequently, many times in a journey, I do not perceive them as limits. This might be different for people with a physical disability.

<sup>3</sup> Presence is another term that Heidegger deploys, and this will be explored later.

<sup>4</sup> In this instance I opted for an imaginary urban condition over a real one, to encourage the reader to become immersed in the experience, bringing to their mind similar experiences based on their own experience.

<sup>5</sup> As experiences are unique (no experience is the same as another one) and particular (each person's experience is exclusive to the person), I should describe them in first person; based on my own experience. Nonetheless, in this instance, I opted for the first-person plural to encourage the reader to get involved; to create his/her own images based on the description using his/her own memory of experiences of his/her urban environment.

<sup>6</sup> Place in the sense that we are located in space and time. We are taking a specific position determined by the façade, kerb but perhaps other elements as a mounting on the background or cars parks alongside the kerb and so on. All these, are also limits. For some these limits are just helping to locate; to others may be limiting therefore these are subjective to many aspects of the individual.

*feeling the floor through our steps and shoes, we see from a standing but moving position as we walk at a promenading pace.<sup>7</sup> Ahead, to one side, we see a large building that presents itself to the city with a set of grand steps and we ask ourselves “is this a public building?” The question is based on the appearance of the grand façade and the gesture of the steps. The next question is “have we arrived?” Not yet; the building is there and we are here.<sup>8</sup> We reach the steps and walk up towards the entrance and ask again; “have we arrived?” Yes, the building is here, I see it, I feel it – indeed, I am on it. But, are the steps part of the building? Are we in the building? Not yet, we are on it but not in it. In front of us and very near, we see the imposing overhang of the building framing the grand entrance, the light has changed, and now the city sounds seem far away. Finally, we reach the door and we move through it.<sup>9</sup> We are inside, we turn around and the outside seems far away – in space and time - and is doubly framed by both the opening and the overhang further beyond. The outside looks far away, further than it actually is. This may be due to our higher position in relation to the street pavement that enables us to see further but, with authority and suddenly, we feel detached from the outside. Are we in the building? Yes, we are in it. Where is the limit between the street and the public building? Is it at the first step? Or, is it at the door; at the threshold of the building? Is it a wide strip defined by the first step and the door or the space beyond? It seems that the limit could be in different locations depending on the criteria; lines, planes or areas that could be identified as the boundary, the in-between, the transitional area between two places...*

This familiar example illustrates the complexities and ambiguities associated with the limit. We could also consider the limit between two streets, a street and a boulevard or in a square and its adjacent urban elements. Thus, the research focuses on the experiential limit, conceived as a phenomenon that we experience in our everyday life, which carries uncertainties as to how and where it is located, informing our experiences and perception. Therefore, this research has a ‘phenomenological’ component, recognising that experiences are personal and unique and determined by the cultures in which the individual who experiences them lives and grows up. I

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<sup>7</sup> In my case, my eyes are about 1.65cms from the floor and my average walking pace is around 1.4m/s or 5km/hr. But, these parameters are unique to each person. The average view is structured by the sight line at -10 degrees in relation to the horizontal, but again this varies from person to person.

<sup>8</sup> The here and there implies a limit; something is *here* and something else *there*.

<sup>9</sup> I could dwell on this part much longer as it is a big moment where the dweller touches with their hands a part of the building; there is a change of scale and the framework changes, being redefined by other elements and measures.

recognise that my own position as a researcher, as a subject who experiences architectural and urban limits, is formed by my own experiences and perception.

This is constructed by my Spanish generalist education in architecture and urban planning where both are part of the remit of the architect and have a strong emphasis on design. At University, I carried out independent and parallel design projects for both disciplines. Despite the separated departments under which each discipline was delivered, there was a degree of overlapping of content and scales between the two project types, leaving little space for urban design to emerge as a distinct discipline. Urban planning taught design to work within the Spanish planning system, related frameworks and theory of urbanism and history of urban planning. On the contrary, architecture was taught within the creative process of design and research aligned with philosophy and conceptual theory. The regulatory system and construction, structures, services, history of architecture and cities were taught separately. My experience and perception have been also determined by my upbringing in the little island of Mallorca, with constant contact with the big city and the rural environments. I moved to Gran Canaria in the Canary Islands to take my university degree, which exposed me to a different culture, values and urban and rural environments far from the place I grew up. These changes were experienced again with a brief move to Antwerp and a much longer stay in Britain, which has since become my place of residence. My work experience in practice and as an educator in Britain has offered me a great contrast in relation to my previous experience where the understanding and remit of the professions of the architect, urban planner and urban designer differ. Thus, my professional architectural background as well as the experiences of and belonging to different cultures at different stages of my life constitute my “baggage”, shaping, in one way or another, my observations and interpretations of the environment I dwell in.

### **Architectural Representation Rarely Captures the Richness of the ‘Experiential Limit’**

*The second proposition from which this research begins responds to the first one; it questions whether, and how, the limit is represented in conventional architectural drawings,<sup>10</sup> in relation to the full experiential richness and complexity of the experience of limits in the world. Drawings<sup>11</sup> are mainly constituted of lines and the line is important to this research for three key reasons:*

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<sup>10</sup> Architectural drawings refer to diagrams, sketches, parti, diagrams, plans, sections and elevations that are part of the profession and practice of the architect. In this research, these are referred to as drawings.

<sup>11</sup> The Oxford English Dictionary defines the noun drawing as 2.a. “the formation of the line by drawing some tracing instrument from point to point of a surface; representation by lines, delineation...” and 2.b. “the arrangement of the lines which determine them”. *OED Online* (Oxford University Press, March 2018) <[www.oed.com/view/Entry/57552](http://www.oed.com/view/Entry/57552)> [Accessed 12 April 2018].

1. As medium in drawing.<sup>12</sup> The line assists with the graphic representation of objects in architectural drawings. The line bounds them, separating and differentiating.
2. Line-making is implicit in the making of visible limits. From a very early age we learn to see through lines influenced significantly by the act of drawing.<sup>13</sup> Looking at the line transversally defines where something begins and ends, an inside from an outside. But the line also has a materiality and in many cases, is defined by its own qualities.
3. It is implicit in the horizon – the ultimate limit. The philosopher Martin Heidegger wrote in 1951 that: “A space is something that has been made room for, something that is cleared and free, namely within a boundary, Greek *peras*. A boundary is that from which something *begins its presencing*. That is why the concept is that of *horismos*, that is, the horizon, the boundary”.<sup>14</sup> He refers to the experiential horizon that structures our views as we move. This moves, changes position and we cannot touch it. Implicitly, he also refers to other horizons, of our broader experience, our intellectual horizons, and ultimately the final horizons of life and death. The representation presented by a line, then, structures the view, each view’s horizon interrelating with others forming a continuum.

These three reasons refer to the representation of the limit through the line, recognising that the limit, *per se*, is rarely experienced beyond the drawing as a line, despite the fact that intuitively a line can be read as a limit itself.

On the one hand, planners draw lines on maps at different scales, defining the limits of development areas, catchment areas for facilities and services, districts, neighbourhoods and land uses. Some of these lines may be materialised as fences, walls or painted lines but many of them are not – it is primarily those which I will focus on in this research – and such lines are ostensibly invisible to our eyes. However, these lines usually intersect with the intrinsic meaning of boundary, making room for a specific land use, development, providing a specific area with a service etc. Furthermore, many of them are legislative, with associated regulations and tenures that affect our everyday lives. Lines on drawings may seem to come alive in the world in many diverse ways, inferring meaning, regulating movement, influencing dwelling patterns and much more.

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<sup>12</sup> Simon Unwin, *Doorway* (Oxon: Routledge, 2007).

<sup>13</sup> Tim Ingold, *Lines. A Brief History* (Oxford: Routledge, 2007) pp.147-146.

<sup>14</sup> Heidegger, p.152.

## Thesis Structure

This thesis is structured in two parts preceded by the introduction and followed by the conclusions.

Part 1 explores and defines 'the experiential limit'. The first chapter looks at recognised urban design literature where the limit features, to highlight the importance of the limit, identify the notion of the limit in urban design and the research methods previously deployed in its inquiry. In the second chapter, a series of case studies exemplifying the complexity of limits in 'real world' situations – two urban and one landscape – are presented through a series of descriptions, accompanied by a photographic survey identifying and describing the significance of the limits in those contexts from my own subjective experience. This seeks to provide a preliminary understanding of limits and how they present to us. The urban cases central to the discipline of inquiry are presented first. These are followed by the landscape case study presenting the limits in the natural environment with little preoccupation with, or attention to, regulations and thus contrasting with the urban cases. The third chapter returns to theory, on the basis of the case studies, particularly reviewing the "philosophy of the limit" as proposed by the Spanish philosopher and author Eugenio Trías<sup>15</sup> in relation to the idea of the liminal introduced by Victor Turner in anthropology and the ideas of threshold found in the work of Aldo Van Eyck and Unwin<sup>16</sup>, the bridge in Georg Simmel<sup>17</sup> and from Heidegger.<sup>18</sup> Thus, the final chapter of Part 1 culminates with a working definition of the limit to be explored through drawing and graphic representation of the limit in Part 2.

Part 2 examines the graphic representation of the experiential limit already described and is based on the working definition established in Part 1. Part 2 is structured into three chapters. The opening chapter discusses the relevance of drawing,<sup>19</sup> as a medium to see, enquire and

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<sup>15</sup> Presented in the trilogy: *Los Límites del Mundo* (Provença, Barcelona: Ediciones Destino S.A., 1985), *Lógica del Límite* (Provença, Barcelona: Ediciones Destino S.A., 1991), *La Razón Fronteriza* (Provença, Barcelona: Ediciones Destino S.A., 1999).

<sup>16</sup> Aldo van Eyck, 'Doorsteps' in Alison Smithson, ed., *Team 10 Primer* (Boston: MIT Press, 1968), pp.96-105.

<sup>17</sup> Georg Simmel, 'Bridge and Door', in *Theory, Culture & Society*, 11 (1994), pp.5-10.

<sup>18</sup> Heidegger, pp.149-156.

<sup>19</sup> The act of drawing involves the limit whilst this may vary depending on the purpose of the drawing. The architect thinks through drawing and at certain stages of the design process makes conceptual drawings inferring meaning to the lines. To start with, the lines are neutral but through drawing and re-drawing they acquire meaning and are codified. On the contrary, when a construction detail is designed pre-existing lines are codified as they correlate with materials and their characteristics and the act of drawing is to define the location of each material represented by codified lines. These are just two ways in which the designer uses lines differently in relation to the limit.

propose, as a verb and a noun within the practice and conventions of representation deployed by the architect and urban designer. It also reflects on the line as a medium and the “drawing forth”,<sup>20</sup> intrinsic to the limit and the scope of the notational system as part of the process of enquiry. The subsequent chapter deploys architectural drawing techniques to graphically represent the limit based on the working definition of the experiential limit provided in Part 1, 1.4. The graphic representations and the associated experience through drawing allows the limit to reveal and display whilst refining the working definition of the experiential limit particularly for and within the practice of architecture and urban design. This time, the case studies are presented in reverse order compared to the descriptions in Part 1, beginning with the landscape case study. This is covered first, as it allows a degree of freedom to investigate the limit in an environment that is not shaped by rules and regulations. This is followed by the urban cases. The final chapter in this part draws interim conclusions on the experience and techniques deployed on the graphic representation of the limit and ends with the refinement of the working definition of the experiential limit in architecture and urban design.

The final conclusion presents a reflection on the progression of the delineation of the experimental limit in architecture and urban design presented based on the lessons learned through the case studies and the theories discussed in Part 1 and Part 2. This is followed by the limitations of the research in relation to experience, language, drawing and the line. Subsequently, a succinct re-delineation of the views on the limit proposed by the canonical urban design thinkers is presented. Finally, a limit is presented from which to think and propose.

## Methods

This thesis draws from phenomenological methods in its analysis of limits as experienced in the world, and from design research methods in its explorations of the architectural drawing of limits. It thus constitutes phenomenological design research.

### Phenomenological Methods

Edmund Husserl has been claimed as the father of the discipline of phenomenology. Its most influential protagonists include Heidegger, Hans-Georg Gadamer, Jean-Paul Sartre, Hannah Arendt, Maurice Merleau-Ponty and Jacques Derrida. Their work has influenced numerous

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<sup>20</sup> Jonathan Hill, ‘Drawing Forth Immaterial Architecture’, *Architectural Research Quarterly*, 10:1 (2006a), pp.51-55.

disciplines and fields, among them Architecture.<sup>21</sup> Phenomenology<sup>22</sup> proposes “to return to things themselves” (Husserl) to “study the laws of free fall while falling”<sup>23</sup> believing that we start to understand the world from a position of already being in it, outwards from our own experience of the world.

According to Heidegger, phenomenology is composed of two Ancient Greek words: *phainomenon* and *logos*. The conventional meaning of *logos* is “word”, “concept”, “thought”; however for Heidegger, it relates to “discourse”, “to bind together” and “gather up” into a unity. *Phainomenon* denotes “that which shows itself in itself, the manifest” derived from the verb *phainesthai* meaning “to show oneself”.<sup>24</sup> Moran explains that “phenomenology has to do with self-manifestation. Things show themselves in many ways, depending on the modes of access we have to them; indeed sometimes things show themselves as what they are not, in cases of dissembling, seeming, illusion and other such phenomena” and he continues by saying “...”Since things don’t always show themselves as they are, phenomenology cannot be simply description, it does not depend on fulfilling intuition as Husserl thought; rather phenomenology is seeking after a meaning which is perhaps hidden by the entity’s mode of appearing” through creative, responsible interpretation “how things appear or are covered must be explicitly studied. The things themselves always present themselves in a manner which is at the same time self-concealing”.<sup>25</sup> This research takes a Heideggerian stance, embracing the idea of embodiment proposed by Merleau-Ponty, based on my own experience of the world as a thinking researcher and specifically of the case studies as lived-experience. This lived-experience is central and is the foundation of the written and drawing experiences here, which are simultaneously determined and broadened by my person and background. These experiences of the limit facilitate reflections upon the limit, deploying different means (observation, writing and drawing), with different outcomes and ways in which the limit can manifest itself beyond its appearance.<sup>26</sup> The written and drawn experiences are co-dependent on the lived-experience, recognising that each

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<sup>21</sup> Architects, and theorists like Steern Eiler Ramunsen, Christian Norberg-Schulz, Robin Evans, Peter Bosselmann, Simon Unwin, Juhani Pallasmaa, Alberto Gómez-Pérez, Steven Holl, Dalibor Vesely, David Leatherbarrow, Peter Zumthor, Tadao Ando, Daniel Libeskind, Juan Navarro Baldeweg, Alvaro Siza Vieira, Eduardo Souto de Moura have dedicated books to the endeavour of architecture linked to its experience.

<sup>22</sup> For Heidegger, phenomenology was initiated back with Aristotle and the ancient Greek philosophy and his definition of phenomenology stems from them instead of Husserl. Dermot Moran, *Introduction to Phenomenology* (Oxon: Routledge, 2000), p.229.

<sup>23</sup> Borrowed from the title ‘Parting with Catholicism and Laws of Free Fall While Falling’ a chapter of Rüdiger Safranski’s book; *Martin Heidegger: Between Good and Evil* (Cambridge, Massachusetts / London, England: Harvard University Press, 1999) pp107-125, specially pp.114-116.

<sup>24</sup> Moran, 2000, p.228.

<sup>25</sup> Ibid.

<sup>26</sup> It refers to “discoverness-Heidegger’s term for the way in which we reveal particular entities; engaged in the world, we discover entities”. Stephan Käufer and Anthony Chemero, *Phenomenology, An Introduction*

type of experience is an experience in itself and these are complementary.

## Design Research

This research, particularly Part 2, concerns the graphic representation of boundaries, as the title<sup>27</sup> suggests. Boundaries are the way in which limits are revealed to us as we dwell in the environment and the aim of the research is to draw these boundaries as experienced.

Thus, aspects of what follows fall into the category of design research,<sup>28</sup> even though the final output is not a conventional architectural design or product. Within design research, Christopher Frayling<sup>29</sup> establishes a triple categorization to explain the relationship between research and design; research “for”, “through”, and “into” design, which are based on Herbert Read’s analysis in the fine arts that is widely cited, and was reviewed by Jane Rendell<sup>30</sup> and Katja Grillner<sup>31</sup> from an architectural design stance. Research “for” design is usually an inquiry with a design application in mind<sup>32</sup> and is “understood as the process of exploration, discovery and fact-finding which makes it possible to produce a particular art-work. This process can be both careful, deep and systematic, as well as spontaneous, associative and serendipitous”.<sup>33</sup> Research “through” design places the emphasis on the act of research taking “design processes to constitute the research methodology itself”<sup>34</sup> relying on interdisciplinary<sup>35</sup> intersections with complex architectural design explorations. In these two first categories the researcher has “access to,

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(Cambridge: Polity Press, 2015), pp.78-79.

<sup>27</sup> The title also includes urban design and architecture because the research is centred within the field of urban design but strongly relies on the discipline of architecture. The boundary between these two fields can be contested. They share a design focus covering complementary scales and aspects though differing in the specificities determining the way professionals and theorists in these areas look at things, think and refer to space.

<sup>28</sup> Research design is a developing type of research and it is also termed creative practice, practice-led or practice-based research, practice-as-research to name a few depending on the particular approach to design, relation to practice and emphasis of the research.

<sup>29</sup> Christopher Frayling, ‘Research in Art and Design’, *London Royal College of Art Research Papers*, 1/1 (1993/4).

<sup>30</sup> Jane Rendell, ‘Architectural Research and Disciplinarity’, *Architectural Research Quarterly*, 8/2 (2004), pp.141-147.

<sup>31</sup> Katja Grillner, ‘Design Research and Critical Transformations: Situating Thought, Projecting Action’, in *Design Research in Architecture. An Overview*, ed. by Murray Fraser (Farnham, Surrey: Ashgate Publishing Limited, 2013), pp.71-94.

<sup>32</sup> Rendell, p.143.

<sup>33</sup> Grillner, p.73.

<sup>34</sup> Rendell, p.143. Frayling mentions Leonardo Da Vinci’s and John Constable’s noble methods of observation and documentation contributing to the future development of knowledge in different fields.

<sup>35</sup> Interdisciplinary research takes place when “individuals operate at the edge and in between disciplines and in so doing question the ways in which they usually work”, *Ibid.*, p 145.



or personal experience of, methods which are, if not unique, then at least characteristics of [...] design practices".<sup>36</sup> Finally, research "into" design "examines design from a historical and theoretical perspective".<sup>37</sup> It is characterised by resorting to research methodologies from other disciplines such as social sciences and humanities among others and has been practiced the longest of the three categories, starting in the nineteenth century. In the two latter categories, it is considered that the act of knowledge development is explicit, and this has to be articulated during the research process but the outcome is not necessarily a design.<sup>38</sup>

The present research is positioned within the category of research "through" design due to the way the knowledge is generated based on complex architectural enquiry (into the limit) intersected with interdisciplinary methods combining theory (urban design literature and philosophy), personal experience and practice (descriptions, drawings, photography). These lead to a distinctive research process conducted through reflective practice, a term coined by Donald A. Schön and central to the practice of the architect and design. It relates to the "process of reflection-in-action which is central to the "art" by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness and value conflict".<sup>39</sup> In this research, drawing is the method of inquiry into limits. It is acknowledged that drawings represent things yet are unlike the thing itself or the experience of it.<sup>40</sup> However, the act of drawing involves intense thinking and reflection where the first line of the drawing is fragile and uncertain but this "talks-back" to the designer and she responds. Her response implies making a decision and this may include drawing a second or multiple lines, a change of drawing, technique or a change of plan. Thus, a "pattern of action" emerges, developing a fluid conversation between the drawing and designer. In some cases, the designer is aware of the process and decisions, applying her knowledge. In others, she is unsure and tries learning through doing. In other moments, the process takes over, where one line leads to another and one drawing to another as a reverie<sup>41</sup> and it may even lead to surprise. Knowing is tacit to the responses and is referred

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<sup>36</sup> Grillner, p.74.

<sup>37</sup> Rendell, p.143.

<sup>38</sup> Grillner, pp.73-75.

<sup>39</sup> Donald A. Schön, *The Reflective Practitioner* (Abingdon, Oxon: Routledge, 2016), First published by Ashgate Publishing, 1983, p.50.

<sup>40</sup> This gap is discussed by many authors but it is worth noting the work by Alberto Pérez-Gómez, in 'Architecture as Drawing', *Journal of Architectural Education*, 36:2 (Winter 1982), pp.2-7 and Robin Evans, in 'Translations from Drawing to Building' published in his book taking the name from this chapter, *Translations from Drawings to Buildings and Other Essays* (London: Architectural Association, 1997), pp.153-194 (154-160).

<sup>41</sup> This term is understood in the sense explained by Gaston Bachelard in his book *The Poetics of Reverie. Childhood, Language and the Cosmos* (Boston: Beacon Press, 1971), pp.159-160.

to as “knowing-in-action” by Schön.<sup>42</sup> In this research, “knowing-in-action” conveys the sense of knowledge acquired about the limit from diverse sources, presented in Part 1, of which I am aware and pay attention to. However, it also conveys the sense of knowledge of practice-led experience, gained through years of practice in architecture/urbanism and urban design from different contexts. I am less aware of this during the drawing process, but it is equally relevant, determining and permeating precisely into the decisions made around the act of drawing, the drawings and the inquiry. Thus, this drawing process is a mode that allows the limit to reveal what is concealed and this happens within a practice that includes reflection at its centre. Reflection enables questioning of the tacit knowledge developed from repetition and different points. Hence, drawings will be complemented with explanations based on the reflections unfolded through the process of drawing and the experience of drawing. Nevertheless, these explanations will be partial as it is impossible to fully cover all the reflections and considerations through the drawing process.

### **Phenomenological Design Research**

Bringing together the two traditions described here, phenomenological research and design research, this thesis draws from the literature of phenomenological theory, which grounds my experiences of the case studies and their representation, and the theories of design research. These have enabled me to interrelate the actual physicality of the limit and its experience with its representation, alongside the experience of drawing representations. As is traditional in ‘applied’ phenomenological research, I rely on my own experiences conducted in the first-person. Given that human experiences of the world are inherently subjective and contingent, my accounts of my experiences are inevitable. Their rigour and reliability lie in my attempts to convey experiences in good faith, directly, thoughtfully and authoritatively, in such a way that they may resonate with others’ experiences of the same places. These accounts will inevitably include preconceptions deriving from my own cultural experiences and professional training, although I have done my best to acknowledge these where appropriate.

Experiences of limits as developed here are threefold, providing different, though interdependent, interpretations: lived-experience, written-experience and drawing-experience. The lived-experience of the limit denotes the experience attained as Being<sup>43</sup> conditioned to

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<sup>42</sup> Schön, see pp.49-75 and chapter 3 'Design as a Reflective Conversation with the Situation', pp.76-104, for an insight into the reflection-in-action in practice of the architect.

<sup>43</sup> Being begins with capital letter as it refers to the animated subject; in this case, I.

being-in-the-world<sup>44</sup> where body-mind are a unity and the Being exists through dwelling in the world,<sup>45</sup> meaning-in phenomenological terms- that they cannot be separated. Hence, lived-experience takes place when we dwell-in-the-world and the limit appears and manifests itself to me in the world. The written-experience and drawing-experience are dependent on lived-experience. The written and drawn experience of the limit refers to reflections upon the limit through describing my lived-experiences, enabling me to identify and distinguish the limit in a conscious way.

## Identifying the Research Gap

This thesis aims to make original contributions to literature on urban design and architectural representation. To do this, I must first reach an understanding of the work that has been done by others on this subject.

### In Urban Design

In urban design, Jan Gehl<sup>46</sup> refers to the “edge effect”, first coined by the anthropologist Derk de Jonge.<sup>47</sup> Kevin Lynch<sup>48</sup> identifies the edge as one of the key five urban elements contributing to legibility and identifies the boundary as a seam as well as a divider. Christopher Alexander comments that “if the edge fails then the space never becomes lively”.<sup>49</sup> Similarly, Jane Jacobs<sup>50</sup> refers to the dynamics between the sidewalk and the building, how the rim of the park affects the performance of the park, to the border vacuum and how “a border exerts an active influence”.<sup>51</sup> Gordon Cullen<sup>52</sup> introduces the “art of relationship” and, with this, introduces the “here and there” and the “this and that” with the tacit limit between them. The landscape architects Clare Cooper Marcus and Carolyn Francis<sup>53</sup> consider the boundary and edge in

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<sup>44</sup> Term borrowed from Heidegger.

<sup>45</sup> Kaufer and Chemero (pp. 78-79) define the Heideggerian “world” as “the holistic background that we disclose” and “disclosedness” as the “we disclose the broad background against which particular equipment makes sense [...] (It) constitutes our openness to the world”.

<sup>46</sup> Jan Gehl, *Life Between Buildings* (Copenhagen: The Danish Architectural Press, Island Press, 1971), p.141, & *Cities for People* (Washington: Island Press, 2010), p.137.

<sup>47</sup> Derk de Jonge, ‘Applied Hodology’, *Landscape* 17 No.2 (1967), pp.10–11,

<sup>48</sup> Kevin Lynch, *The Image of the City* (Cambridge, Mass: MIT Press, 1961).

<sup>49</sup> Christopher Alexander, Sara Ishikawa, Murray Silverstein and others, *A Pattern Language. Towns, Buildings, Construction* (New York: Oxford University Press, 1977) p.600.

<sup>50</sup> Jane Jacobs, *The Death and Life of the American Cities* (London: Penguin Books Ltd, 1961).

<sup>51</sup> Ibid., p.217.

<sup>52</sup> Gordon Cullen, *The Concise Townscape* (Oxford: Architectural Press, 1961).

<sup>53</sup> Cooper Marcus, Clare and Francis, Carolyn ed., *People Places. Design Guidelines for Urban Open Space*

relation to ownership and people's needs and safety with a similar approach to the previous work by Oscar Newman (1973). Nevertheless, he focused his research on the residential. Thus, since the 1960s there has been a clear recognition that the border, boundary, edge, here referred to as *limit* is prime in the urban space, the city.

However, to trace the origins of the boundary, we must go back at least to 1748 when this was, in a loose way, recognised in the Nolli map of Rome by Giambattista Nolli. The map shows how public spaces are assembled by the drawn detail, not just of the open public spaces, but also the inner public spaces accessible to all. The map shows an interest in exploring the continuity between public spaces revealing the transitions between inner and outer spaces transgressing the limit between the two domains. In 1889, Camillo Sitte<sup>54</sup> published his work on the enquiry into artistic principles in the city, implying the limit in his figure-ground plans, even though he did not explicitly mention it.

This desire for continuity of space has been explored and taken to an extreme degree in the modern period. Rob Krier's morphological studies<sup>55</sup> are a reaction to the modern period aligned with Sitte's approach and, in a less direct manner, to the concept of the Nolli plan. He defines two types of open public spaces: spaces to move through and spaces in which to stay, and all these are flanked by façades. Thus, the façade is the limit of the public spaces and when two spaces are put together, the limit is implicit or transgressed. However, the limit, boundary, border or edge all seem relevant to Krier's work and thinking, yet he does not mention them. Later, Edward T. White in his book *Path, Portal, Place, Appreciating Public Space in Urban Environments*,<sup>56</sup> combines the approaches of Cullen and Krier and defines portals as moments of "transition and transformation". Portals are gateways or thresholds where the inside transforms into an outside and vice versa. They are in-betweens in their own right, able to orchestrate the unfolding of our views.<sup>57</sup>

From this millennium, three relevant studies should be noted. Firstly, the work by the geographer Larry R. Ford<sup>58</sup> who lists an inventory of "spaces between buildings", in his book with

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2nd edn. (New York: John Wiley & Sons, Inc., 1998).

<sup>54</sup> Camillo Sitte, *City Planning According to Artistic Principles*, trans G Collins and C Collins. (New York: Random House, 1965 original published in 1889).

<sup>55</sup> Rob Krier, *Urban Space* (New York: Rizzoli, 1979).

<sup>56</sup> Edward T. White, *Path, Portal, Place, Appreciating Public Space in Urban Environments* (Tallahassee: Architectural Media Ltd, 1999), pp.57-98.

<sup>57</sup> Quentin Stevens, *The Ludic City. Exploring the Potential of Public Spaces* (Oxon: Routledge, 2007), p.188.

<sup>58</sup> Larry R. Ford, *Space Between Buildings* (Baltimore/London: The Johns Hopkins University Press, 2000).

this same title. He establishes three categories of elements and spaces: 1). Buildings and space around the buildings, 2). Green, shaping space and the street, and 3). Alley and parking, shaping access.

The elements or spaces he reflects upon are spaces in their own right, and he argues how the current city is an inside out version of the traditional city. The terms *limit*, *boundary* and *edge* are mentioned and *in-between* is defined but in a generic way. Subsequently, the former architect Miloš Bobić<sup>59</sup> provides the most extensive study on the boundary, focusing on the transition between inside and outside, public and private, and public and domestic domains. In his view, this transition defines in a delicate but complex manner the degree and sense of urbanity of an environment and this can be influenced, but not designed. The main argument and descriptions presented in the first parts of the book are original and accurate, but the representations of the transitions presented in the second part of the book are unsatisfactory, adding little or no knowledge. The third study is by the architect-urban planner Stevens, who examines the “playful uses of urban space”,<sup>60</sup> where boundaries restrict or broaden what people can do in the public realm, demonstrating that the boundary shapes people’s experience and play in the city.<sup>61</sup> Three chapters of his book are related to the limit: intersections, boundaries and threshold and these are explored through descriptions and in some cases supported by photos, but not graphically represented.

Although there is seemingly a consensus on the significance of the limit, there are no conclusive studies to the inquiry. A considerable number of studies recognise the limit, in others the limit is implicit and in a few the limit is explicitly explored. These studies offer a variety of terms and yet these are rarely defined. The sociologist Richard Sennett, in his essay *The Open City*,<sup>62</sup> deploys the noun *edges* for limits and establishes two categories; *boundaries* or *borders*, which also feature in his later book *Together*.<sup>63</sup> Edward Casey adopted the same terms defined differently in his later book, *The World in Edge* and he presents an intricate reflection upon the terms related to the edge leading to a loose categorisation.

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<sup>59</sup> Miloš Bobić, *Between the Edges. Street-building Transition as Urbanity Interface* (The Netherlands: THOT Publishers, 2004).

<sup>60</sup> Stevens, p.01.

<sup>61</sup> Ibid., p.115.

<sup>62</sup> Richard Sennett, ‘The Open City’ in *The Endless City*, ed. by Ricky Burdett and Deyan Sudijc (London & New York: Phaidon, 2007), also accessible at <<https://www.richardsennett.com/site/senn/UploadedResources/The%20Open%20City.pdf>> [Accessed 11 November 2016].

<sup>63</sup> Richard Sennett, *Together. The Rituals, Pleasures and Politics of Cooperation*, (London: Penguin Books Ltd, 2013), p.79.

## On the Representation of Limits in Drawing

Urban designers, landscape architects and architects use drawings as a way of representing and communicating but they are aware of the separation between the drawing and the object they represent. Designers and theorists as such as Alison and Peter Smithson,<sup>64</sup> Evans, Vesely and others affirm that drawings cannot reflect the full extent of experiences. Even though the designer cannot design people's experiences, she can plan, predict, aim to trigger certain experiences through the subtle use of elements, their physiognomies and their manipulation. The architect<sup>65</sup> perforates a wall not just to allow light and ventilation through but to show the passing of time or to mark something specific with direct light. She may propose a large overhanging canopy to mark the entrance, providing a transitional space protected from rain and direct sun, but also-and perhaps more importantly- to announce the authority of the company the building hosts through the imposed projected changeable shadow from the canopy upon the visitor. She may define the height of a wall defining a space or segregating it but this may also be a seat acquiring a different function, meaning, and modifying the relationship between the spaces it is dividing. So, the experiences per se are not designed as these are unforeseen but the triggers of possible experiences are considered and designed for, although these are far from being guaranteed.

Of the three designers-urban designer, landscape architect and architect- it is the architect whose medium is to manipulate limits in an explicit manner. She sets limits using walls and floors and transgresses them with doors, windows and stairs, these being the primary elements of a building. Hence, the limit is embedded in the thinking of the architect even if she does not think about the wall and floors in these terms.<sup>66</sup> Nonetheless, some architects have looked at the limit explicitly. Van Eyck<sup>67</sup> and Unwin pondered over the notion of the threshold in relation to the doorway and indeed drew them. Many of Le Corbusier's projects (Casa de La

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<sup>64</sup> Alison and Peter Smithson, *Italian Thoughts* (Sweden: published by the office of the authors 1993). This book is the result of the summer workshops that annually would take place somewhere in Italy.

<sup>65</sup> In this research architect refers to the professional who engages with design as a process of inquiry. The architect moves back and forth between the world of conceptual and tangible ideas deploying different types of thinking and operating. He tests conceptual ideas in the realm of the tangible through drawing or modelling deploying different scales enabling him to establish relations. He goes through an iterative process moving ideas forward slowly through reflective practice. Different architects adopt and develop different methods and these vary through time and even between projects. The architect is a professional and in spite of applying a personal design method, he adopts the professional code of practice. This varies between countries but in all it carries a significant level of liability and, at specific stages of projects, defines his practice.

<sup>66</sup> Adam Sharr, *Heidegger's Hut* (Boston: MIT Press 2006).

<sup>67</sup> In Smithson, Alison, ed, *Team 10 Primer* (Boston: MIT Press, 1968), pp.96-105.

Plata, Villa Savoye, to name a few) are explained through the journey, moving from one room to another room, from one space to another and this implies the limit and its overcoming. Another paramount example is the work by Alvaro Siza, also considering the journey through the city into his buildings, as well as the configuration and setting<sup>68</sup> of the different parts of the building becoming part of the existing where the limit is continuously transgressed. Moreover, Carlo Scarpa, in his project at Brion Cemetery in Italy, works with the idea of the threshold and the horizon defining the physical boundary of the site. In all these cases and many others, the limit has been considered and drawn implicitly as part of the project prior to it being built. The architect neither drew the limit just as a limit, but as part of the whole and nor did he write specifically about them. Nonetheless, we experience them.

Unlike the architects noted above, Bernard Tschumi<sup>69</sup> writes about the boundary and deploys it in his design inquiry, encouraging him to experiment and overcome drawing conventions and move to other representational conventions like the ones used in music and choreography. Pallasmaa, Holl, and Pérez-Gómez<sup>70</sup> unveil the importance of the different “grounds” to construct our views continuously presented to us while dwelling and a limit is embedded between two grounds. Moreover, the grounds are structured from the horizon, the datum as Alison and Peter Smithson call it in their book *Italian Thoughts*, common to all views. Juan Navarro Baldeweg<sup>71</sup> differentiates between the experiential and geometric horizon and understands that space is experienced through the amalgamation of views. These views are interrelated (stitched together) through the horizon-as datum- proposing an alternative way of constructing views that questions the bounding nature of space. Nevertheless, there is no published work, let alone an anthology on the graphic representation of the limit, even though this is embedded in the thinking and practice of the architect. The architect primarily draws with lines, which become an expression of the design process and these are limits and perspectives built from the horizon, the ultimate limit.

## A Note on Case Studies

As outlined above, distinctive case studies have been identified here. The phenomenological method relies on the researcher’s experience and these examples were selected as places

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<sup>68</sup> Setting as he was trying to cover the empty and vacant position on the view; finishing the scene.

<sup>69</sup> Bernard Tschumi, *Architecture and Disjunction* (Cambridge: The MIT Press, 1996), pp.101-118.

<sup>70</sup> Stephen Holl, Juhani Pallasmaa, Alberto Pérez-Gómez ed., *The Question of Perception. Phenomenology of Architecture* (San Francisco: William Stout Publishers, 2006).

<sup>71</sup> Juan Navarro Baldeweg, *Una Caja de Resonancia* (Girona: Editorial Pre-textos, 2007).

whose complex limits had previously made an impression on me in terms of their intriguing, complex and rich conjunction of limits. I consciously returned to them to conduct this research and study further their experiences and representations.

The landscape case I have examined is an inlet called *Cala Pi* situated on the South-West coast of the island of *Mallorca*. An inlet by definition is an in-between, liminal space where the land made space for it. It is a discontinuity on the edge of the land where sea and land meet; a potential place for investigating limits.

The urban cases are located in the city of Barcelona, which has become famous since the 1980s for the strategic importance accorded there to public realm and city making, shown through the care invested in new projects. The city of Barcelona has a way of “making”<sup>72</sup> reflecting a way of thinking and doing expressed as the “*Modelo Barcelona*”.<sup>73</sup> This is characterised by the term “integration”, an attribute that leads to design considering a variety of tactics, avoiding or at least minimising “plans” and empowering projects<sup>74</sup>. Barcelona is characterised by work-with-in (with the existing and heritage) aiming for a balance between contextualism and innovation.<sup>75</sup> In Barcelona, typical urban elements of the large-middle scale such as ring roads, malls, large avenues with great flows of traffic, residential units etc. are not juxtaposed with the urban fabric, expecting them to blend due to mere proximity. On the contrary, these elements are generated and designed from within the urban fabric and the dialogue among the different scales. They are designed for their integrity and identity as well as continuity, revealing intricate and sophisticated limits. These limits mediate different situations in an operative way and also exist in the chosen case studies. Furthermore, the city council provides access to numerous data and mapping and substantial literature is available on the development and implementation of

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<sup>72</sup> This way of making is presented in several books and authors: Josep M Montaner, Fernando Álvarez, Zaida Muxí, ed. *Archivo Critico: Modelo Barcelona 1973-2004* (Barcelona: Actar D, 2012); Joan Busquest Grau, *Barcelona. The Urban Evolution of a Compact City* (Italy: Nicolodi, 2005), and Tim Marshall, *Transforming Barcelona* (London: Routledge, 2004).

<sup>73</sup> Montaner et al., pp.217-284.

<sup>74</sup> The city in the 1980s supported for Special Projects of Interior Refurbishment (*Proyecte Especial de Rehabilitació Interior*, PERIs) and avoided plans. The former provides information from the middle scale characteristic to planning but great effort is put into the detailed design proper of the small scale and resolution and characteristic of architecture.

<sup>75</sup> Barcelona does not romanticise heritage leaving parts of the city like museums due to an over protection of the heritage. Barcelona allows even prestigious parts of the city to change through time aiming for that balance between context, history and innovation. An example of this are the changes to the original section of the *Avinguda Diagonal* to adapt to the new needs of electric vehicles. The boulevard *Diagonal* is recorded in Allan B. Jacobs, Elizabeth Macdonald, and Yodan Rofé, *The Boulevard Book. History, Evolution, Design of Multiway Boulevards* (Cambridge, Mass: The MIT Press, 2002), and recognised by many as a great urban element but the people of Barcelona have the confidence to allow this to mutate for the best to reach the needs of the 21<sup>st</sup> century.



its public realm.

## Landscape Case Study

The landscape case study was identified as part of the general methodology to reflect on the limit, to question what a limit is and how it operates for three reasons:

1. Liminality is a constituent condition of the landscape. Therefore, it makes it the perfect place to experience the liminal with minimal artifice.
2. It has proved helpful to question distorted intuitions, overcome and see beyond preconceptions and to overcome my limitations as a trained architect and urban designer.
3. Its experiences have helped me think about the limit outside of the built environment, where everything is made, manipulated and formalised following regulations and socio-economic processes.

The site is about 130 miles from Barcelona, sited on the south coast of Mallorca. The landscape here is mainly formed of limestone. *Cala Pi* itself is a geological incident where the sea meets the land, the land seems to have cracked open to allow the sea water to enter and, in this particular inlet a stream of fresh water from inland crosses the inlet and meets the sea.

Furthermore, the inlet is a limit to a settlement placed to the east whereas the opposite side is purely natural. There are subtle man-made interventions and the case will be presented from the whole to the particular, ending by reflecting on the juxtaposition of sand, fresh water and sea water.

## Two Urban Case Studies in Barcelona

The urban case study *Jardins de Lina Òdena* correlates with the famous Cerdà street-block of the *Eixample*,<sup>76</sup> which is repeated across a large part of the city. The term "street-block" includes the block itself, plus half of the adjacent streets, considered together as a unit. The selected block is one of over 50 blocks which have had their interior spaces - *Jardins* (gardens) - recovered as open public spaces over the last 30 years. In the 1890s, *Jardins de Lina Òdena* was divided by

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<sup>76</sup> The Catalan term *Eixample* translates into Spanish as *Ensanche* and in English refers to widening. This is deployed for the large urban extensions (widening) to existing cities or towns implemented at the end of the 1800s and 1900s in Spain as a result of a large population moving to the city. Valencia, Palma, Bilbao, Madrid, Sant Sebastian are some cities which have their *eixample* or *ensanche*. Manuel de Solà-Morales, in *Cerdà / Ensanche* (Barcelona: Edicions de la Universitat Politècnica de Catalunya, SL, 2010), pp.13-19 provides information on the Spanish *ensanches* and their relation to European developments of that period.

the limit separating the municipalities of Barcelona and Sant Martí.

The particularity, but not uniqueness, of the recovered inner space of the block for public use proposes a greater number of juxtapositions of domains and consequently a greater number of liminal situations compared to the typical street-block. There is public and private space, but within these there are varieties; the street offers a different type of publicness from the one experienced in the inner space, and the private space behind the front façade defining the limit of the block differs from the private space behind the façade facing the inner space. Therefore, a series of limits are studied. At the level of the street, the limit between the area dedicated to the vehicles and the pavement. At the level of the street-block, the limit between the pavement and the outer perimeter of the block and the limit between the pavement, outer perimeter and accesses to the inner space. At the level of the block, the limit between the inner open public space (*Jardins*) and the inner perimeter of the block and the limit between spaces within the inner open public space.

The case study *L'Illa Diagonal* superblock includes a variety of land uses including a shopping mall, offices, hotels, car parking, convention centre, high school and night club sited to the south-west of the *Eixample*. This shopping mall is a product of "neoliberalism",<sup>77</sup> where the privatization of public space has increasingly become a common condition and practice in most cities. The generic shopping mall, when introduced into the urban fabric of a dense city, is usually conceived as an introverted box that collides with the city, and relationships are forced. In this instance, the *L'Illa Diagonal* shopping mall which is part of the superblock includes a shopping centre, market, offices, hotel and car parking. It has been carefully integrated into the city to overcome the typical boundaries and limits with the urban fabric associated with this type of development.

This case study belongs to one of the twelve areas of opportunity that the city council designated to decentralise Barcelona.<sup>78</sup> *L'Illa Diagonal* belongs to the development area *Diagonal-Sarrià* and the district of *Les Corts*, placed between and mediating the *Avinguda Diagonal* and the residential neighbourhood behind it. The programme has been used in a

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<sup>77</sup> *L'Illa Diagonal* with its privatised public space is a product of the neoliberal political economic system based on the free-market with direct implications for development, culture and even social life where the private interests compromise the public good. Neoliberalism is based on *laissez-faire* in contrast to the egalitarian liberalism system of the 19th Century. This is associated with deregulating the market and reducing state intervention in the economy through privatisation and austerity (see Paul L. Knox, *Cities and Design* (Abingdon, Oxon: Routledge, 2011), pp.127-138.

<sup>78</sup> Joan Busquets Grau, *Barcelona, The Evolution of a Compact City* (Italy: Nicolodi, 2005) p.380.

strategic way in order to establish a gradation between the scale of the *Avinguda Diagonal* and the local uses and scale of the neighbourhood. The building, *L'illa Diagonal*, where the shopping centre is located, is an “in-between” designed to relate to the avenue, the residential area and its varied dwellers, deploying intelligent and sophisticated limits. This is the most architectural of the case studies presented, involving moving between buildings and through a building.

Several limits will be considered: The superblock adopts a liminal condition as an in-between, between the avenue and residential area and among the blocks facing the *Avinguda Diagonal*, in terms of deployment of massing and topography, land uses and linkage-entrances to the *L'illa Diagonal* and its wider context. The entrances from *Avinguda Diagonal* experience the illusion of inside/outside, public/private (pseudo public) domains. These are openings inserted in the façade that define their relationship with the façade, massing and pavement (linking different elements operating at different scales). The entrances are part of the passages that cross the building and intersect with the public space behind it, and the central arcade of the mall.





# Part 1: The Idea and Experience of the Limit





## The Idea and Experience of the Limit

Part 1 of the research aims to account for the ontology and epistemology of the experiential limit in the built environment. It is structured into three chapters plus an interim conclusion.

Chapter 1.1. 'The Idea of the Limit' reviews how the limit is conceptualised and studied in the field of urban design.<sup>1</sup> It seeks to identify the research gap within the field of urban design, the definition of the limit in urban design and architecture, and methods employed to study the limit. The primary literature within the urban design field,<sup>2</sup> reviewed in Chapter 1.1, highlights authors who refer to the limit by using a broad terminology associated with a generic understanding. Theorists deploy different terms such as *boundary*, *bound*, *edge*, *in-between*, *in-betweenness*, *margin*, *marker* and *threshold*. However, there appears to be no consistency in the use of these words.

The descriptions of experiences of limits in the world presented in Chapter 1.2 'Experiencing the Limit' complement this finding, exploring in the real world how the multiple descriptions and definitions of the limit play out. All the words used to describe limits are part of our daily language. In meaning, they are in close proximity, introducing a dimension of ambiguity which makes them intriguing and inspiring, yet open to study and interpretation. These different terms pose relevant questions. For instance, do "*limit*" and "*boundary*" have the same meaning? Does the "*in between*" refer to the limit or something different? Is the edge a limit or does the "*edge*" imply a limit? Does the "*margin*" include a limit? Do each of these terms correlate to a specific spatial configuration, do they include a number of determinant aspects? These questions ask whether there is there a correlation between language, experience and spatial configuration.

Chapter 1.3, 'Defining and Re-defining the Limit' thus turns to conceptual and abstract thinking about the limit in philosophy, and how the limit structures our lives as presented

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<sup>1</sup> This chapter presents theories that belong to the field of urban design, but these may be written by geographers, architects, planners or sociologists. The author's background permeates their views as well as methodologies.

<sup>2</sup> The revised theories are relevant or emergent from urban design as far as the authors refer to the built environment and more specifically the space between buildings and urban conditions. Nonetheless, some authors have a background in geography, anthropology, architecture, planning who conduct research in urban design.



in anthropology. Philosophers have contemplated the limit as central to the act of being. Anaximander (c.610 BC– c.546 BC), for example, one of the first philosophers to write down his reflections, was already concerned with this concept and it was the beginning of a concern shared by many influential philosophers through history, passing through Plato, Aristotle and Emmanuel Kant to modern and contemporary thinkers like Martin Heidegger and Gilles Deleuze. In this research, significant importance is given to the Spanish philosopher Eugenio Trías Sagnier, who dedicated most of his later work to the “Philosophy of the Limit”. Subsequently the concept of “liminal”, closely related to the limit, is explored through the work of anthropologists as such as Victor W. Turner, Arnold van Gennep and other more contemporary authors like Bjørn Thomassen and Arpad Szokolczai. The notion of the liminal advances the discussion to the threshold, bridge (Simmel) and city wall bringing it back to the built environment. This chapter will address the etymology of the limit and other related words and identify a theoretical framework for the limit through its definition.

Chapter 1.4 ‘Interim Conclusion’ presents a working definition of the limit in architecture and urban design based on the above, to be further explored in relation to the representation of the limit in Part 2 of the thesis.

## 1.1 The Idea of the Limit

Canonical authors publishing within the field<sup>1</sup> of urban design have considered the question of the limit to some degree, but it is challenging to propose a convincing categorisation of knowledge due to the variety of approaches to urban design as subject and profession. The available reviews of the field of urban design published in books by Ali Madanipour, Clara Greed and Marion Roberts, Barnerjee Tridib and Anastasia Loukaitou-Sideris, and the trilogy by Alexander R. Cuthbert and the readers Malcom Miles, Tim Hamm and Ian Borden, Matthew Carmona and Steve Tiesdell, Michael Larice and Elizabeth Macdonald<sup>2</sup> provide different overviews determined by the respective editors' backgrounds, practices and interests, offering diversity instead of consensus to the structure of knowledge on urban design. This research is interested in the design nature of the field and in thinking for urban design, referring to "the body of knowledge, ideas and practices which characterise the applied field".<sup>3</sup> My interest lies

<sup>1</sup> In 1956, the Spanish architect-urban planner José Luis Sert held the conference "Urban Design" at the Harvard University Graduate School of Design where he presented two definitions of urban design, but nowadays there is still no consensus on the definition of urban design or if this is a field or discipline (see, Alex Krieger, William S. Saunders, Alex and William S. Saunders, eds., *Urban Design* (Minneapolis: University of Minnesota Press, 2009), pp.113-114; Ali Madanipour, *Design of Urban Design. An Inquiry into a Social-Spatial Process* (Chichester, West Sussex: John Wiley & Sons, Inc, 1996), pp.91-94 and *Urban Design, Space and Society* (Basingstoke, Hampshire: Palgrave Macmillan, 2014), pp.11-14; Matthew Carmona, Tim Heath, Taner Oc & Steve Tiesdell, *Public Places Urban Spaces* (Oxford: Architectural Press: 2003), pp.3-19. Clara Greed and Marion Roberts consider urban design as a "subject and a profession", *Introducing Urban Design. Interventions and Responses* (Harlow, Essex: Addison Wesley Longman Limited, 1998), p.vii. Carmona et al. (2003), deploy the terms "field" and "discipline" while Alexander R. Cuthbert in his trilogy (edited book), *Designing Cities: Critical Readings in Urban Design* (Oxford: Blackwell Publishing, 2003); *The Form of Cities: Political Economy and Urban Design* (Malden & Oxford: Blackwell Publishing, 2006) and *Understanding Cities: Method in Urban Design* (Abingdon, Oxon: Routledge, 2003, 2006, 2011), reviews "urban design" concluding that urban design is not a discipline but an inter and multidisciplinary field. Madanipour, *Urban Design, Space and Society* (Basingstoke, Hampshire: Palgrave Macmillan, 2014), pp.14-23, agrees with Cuthbert's position but he goes further discussing that "urban design can potentially go beyond multidisciplinary collaboration and engage in interdisciplinary and transdisciplinary work".

<sup>2</sup> Madanipour 1996 & 2014; Clara Greed and Marion Roberts; Barnerjee Tridib, Anastasia Loukaitou-Sideris, eds., *Companion to Urban Design* (Abingdon, Oxon: Routledge, 2011); Cuthbert 2003, 2006 & 2011; Malcom Miles, Tim Hamm, Ian Borden, eds. *The City Cultures Reader*, 2nd edn. (Abingdon, Oxon: Routledge, 2004) this includes a part titled: 'Boundaries and Transgression' though this covers the subject from a different angle than the boundaries/limits of interest to this study; Matthew Carmona & Steve Tiesdell, eds., *Urban Design Reader* (Oxford & Burlington: Architectural Press, 2007), Michael Larice and Elizabeth Macdonald, eds., *The Urban Design Reader* (Abingdon, Oxon and New York: Routledge, 2007).

<sup>3</sup> Mike Biddulph, 'The Problem with Thinking about or for Urban Design', *Journal of Urban Design*, 17:1, (2012), pp.1-20.

in the particularity of substantive knowledge questioning the “what and why”, in contrast to the normative thinking that focuses on “what should be”. This chapter covers a review of authors whose work is widely accepted and well referenced in urban design, yet also relates to the specificity of this research and its focus on the spatiality and the everyday life of boundaries (limits) by deploying a phenomenological design research methodology. Therefore, the selected authors and theories study boundaries, at least to some extent, as socio-spatial phenomena and thus focus on their spatial qualities and people’s experience of them. This section, founded on my review of the literature, proposes a loose tripartite structure. Each group is based on what originated their enquiry in relation to the critical position that informed their research methods and outcomes that are relevant to this research.<sup>4</sup>

The first group is led by authors who studied urban life in the public realm such as Jan Gehl, William Hollingsworth Whyte, Jane Jacobs, Gordon Cullen and Quentin Stevens.<sup>5</sup> These authors do not conceive the city without people therefore, these are at the centre of their enquiry. They study people’s behaviour and preferences when inhabiting the built environment in order to identify ways of designing the built environment to improve it and increase its use. The second group includes authors who contributed to definitions of some of the normative theories<sup>6</sup> of urban design based on their work questioning the “what and why”. These are Kevin Lynch, Christopher Alexander, Clare Cooper Marcus & Carolyn Francis, and Larry R. Ford.<sup>7</sup> These look for principles and guidance to assess or design new environments, predicting a positive result as well as providing environments that people desire. The authors in the second group are still interested in people, but start their enquiry from the built environment and, in some cases engage with people to examine what they think, want or wish but do not monitor their behaviour in the built environment. Therefore, there is a shift between the first and second group in relation to the role of the inhabitant within their enquiry and this has informed their

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<sup>4</sup> In their book *Public Places Urban Spaces* 2nd edn (Oxford: Architectural Press: 2010), Matthew Carmona, Tim Heath, Taner Oc & Steve Tiesdell offer an overview of the field organised into three parts and the second part is structured under six dimensions: morphological, perceptual, social, visual, functional and temporal, providing some support to the proposed structure here.

<sup>5</sup> Jan Gehl, *Life Between Buildings* (Copenhagen: The Danish Architectural Press, Island Press, 1971); William H. Whyte, *The Social Life of Small Urban Spaces*, (New York: Project for Public Spaces, 1980); Jane Jacobs, *The Death and Life of Great American Cities* (London: Penguin Books Ltd, 1961); Gordon Cullen, *The Concise Townscape* (Oxford: Architectural Press, 1961); Quentin Stevens, *The Ludic City. Exploring the Potential of Public Spaces*, (Oxon: Routledge, 2007).

<sup>6</sup> Larice and Macdonald eds.

<sup>7</sup> Kevin Lynch, *The Image of the City* (Cambridge, Mass: MIT Press, 1961); Christopher Alexander, Sara Ishikawa, Murray Silverstein with others, *A Pattern Language. Towns, Buildings, Construction* (New York: Oxford University Press, 1977); Clare Cooper Marcus and Carolyn Francis, ed., *People Places. Design Guidelines for urban Open Space* 2nd edn. (New York: John Wiley & Sons, Inc., 1998); Larry R. Ford, *Space Between Buildings* (Baltimore/London: The Johns Hopkins University Press, 2000).

methodologies. The third group is composed of authors whose main approach is morphological, focusing on the forms of urban fabrics, recognising the aspects, elements and interrelationships that define the urban fabrics as well as the processes and transformations that are shaped by cultural and socio-economic factors. Some concentrate on identifying elements that constitute the urban fabrics establishing types that are repeated evolving and adapting through time. Hence, this group have shifted their view-point on the built environment as a result of human interventions, with an emphasis on processes and systematization. The importance of the Nolli plan and figure-ground plan as techniques are recognised and this group is led by Nolli, Italian architect and surveyor and his interpretation and representation of Rome dated 1748. He is followed by Camillo Sitte, Rob Krier, Roger Trancik, Edward T. White and Bobić.<sup>8</sup>

## The Limit Defining Urban Life in the Public Realm

This first group of authors studying urban life base their research on the study of people's behaviour and inhabitation of the public realm. They are interested in understanding how people use public spaces, where they like to go, preference of paths, sitting. In short, they are interested in the individual's behaviours and their choices. They observe people's behaviour in the city and this is recorded in different modes chosen by the authors. Some select mapping the inhabitants' movements, stops, where they stay and for how long, while others take pictures and/or videos. Some prefer to conduct questionnaires or open interviews, asking for routines and preferences when inhabiting a space or area. Researchers design the protocols behind the method in relation to the research question and in some cases, they use a mixture of methods to be contrasted or complemented.

### Activities Dependent on the Edges

Gehl,<sup>9</sup> in his seminal book *Life Between Buildings* first published in 1971, puts forward his theory on the dynamics of urban life in public spaces based on systematic empirical observation. He studies and classifies activities that take place in the public real. He establishes a direct proportional relationship between the time people spend in a space, their active contact with

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<sup>8</sup> Camillo Sitte, *City Planning according to Artistic Principles* (New York: Random House 1965-original pub 1889); Rob Krier, *Urban Space* (New York: Rizzoli, 1979); Roger Trancik, *Finding Lost Space* (Canada: Wiley, 1986); Edward. T. White, *Path, Portal, Place, Appreciating Public Space in Urban Environments* (Tallahassee: Architectural Media Ltd,2007); Miloš Bobić, *Between the Edges. Street-Building Transition as Urbanity Interface* (The Netherlands: THOT Publishers, 2004)

<sup>9</sup> Gehl is Danish architect devoted to the study of "urban life" and his well-known work started in Copenhagen though he has conducted studies for many European cities, American and Australia.

other people and also between the time people stay in a space in relation to the quality of the public space. As part of the qualities of the public space he refers to the term “edge effect”<sup>10</sup> originally coined by the sociologist Derk de Jonge, in 1967, who demonstrated the importance of the “edge” through his observations whilst “open plains or beaches are not used until the area around the edge is fully occupied”.<sup>11</sup> Gehl observes that the “edge effect” also takes place in public spaces and he refers to natural conditions like the forest or beach relating to both de Jonge<sup>12</sup> and Edward T. Hall.<sup>13</sup> Gehl corroborates that the “popular zones for staying are found along the façades in a space or in the transitional zone between one space and the next[...]. Stopping zones also are found along the borders of the spaces or at the edges of spaces within the space”.<sup>14</sup> Therefore, the *edge* in this reading refers to the limit between two things or areas; sometimes it is where two spaces, space and façade or others meet. He affirms that the *edge* provides some psychological and practical advantages where people can see whilst not being too exposed, helping them to keep distance from others. Activities may take place within the *edge*; for instance, when an activity spills from one domain into another. He refers to the doorstep as a place to stay and from which later to move into the space if desired, and describes how kids gather along the entrance for a while until they start playing and taking over the space. Thus, the *edge* is more than just a thin line; it has a thickness where things happen. Furthermore, Gehl, in *Cities for People* published in 2010 mentions once again<sup>15</sup> the notion of the edge but this time with considerable focus, addressing the *edge* defined by the buildings where he offers pictures of people inhabiting the *edge*, walking alongside façades, shopfronts defining the edge and so on, alongside text explaining its characteristics. He refers to the place “where the city and building meet” referring to the “zone” we experience as we walk along where the frontages are places, where we “enter buildings and where indoor and outdoor life can interact”. The *edge* defines the individual visual field contributing to the spatial experience helping to define the “individual space as a place. Just as the walls of a home support activities and communicate a sense of wellbeing, the city’s edges offer a feeling of organization, comfort and security”.<sup>16</sup> The façade, as edge, establishes a rhythm to the street through a sequence of front shops, the

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<sup>10</sup> Gehl, *Life Between Buildings*, pp.148-149.

<sup>11</sup> Ibid., p.149.

<sup>12</sup> Derk de Jonge, ‘Applied Hodology’, *Landscape 17* (1967), pp.10–11

<sup>13</sup> Edward T. Hall, *The Hidden Dimension* (New York: Bantam Doubleday Dell Publishing Group, Inc. 1988), pp.138.141.

<sup>14</sup> Gehl, pp.149.

<sup>15</sup> Previously mentioned in *Life between Buildings* originally published in 1971 and again in 2011.

<sup>16</sup> Hall explains how Europeans usually furnish spaces from the edge while Japanese furnish the space from the centre from which to read and make evident the edge of the space establishing a tension between the two. These are completely different conceptions of space and its limit based on cultural and philosophical understandings of the void.

width and size of five to six metres of property is favoured, and vertical lines are favoured when positioning the fenestration as well as when composing the main lines of the overall façade.<sup>17</sup>

All these aspects affect our perception of time as well as the amount of activity these create. Gehl explains that ground floor elevations of buildings should have details, as we need stimulation every four to five seconds and also difference things can take place jointly such as secondary seating or standing along the façade. We get seven times more city life in areas with soft edges, active façades, contrasting with hard edges.<sup>18</sup> Along the soft edges, even if these tend to be busier than the hard edges, people stop to compose their shopping bags, talk on the mobile phone, while people walking along hard edges walk faster and no active interaction takes place. This corroborates Gehl's frequently quoted remark that "people come where people are".<sup>19</sup>

A similar argument applies in residential areas, although the formalization of the soft edge is defined by the use and needs for privacy, and the different points have been substantiated by observation studying different residential areas in different countries with different cultures.<sup>20</sup> In residential areas the soft edges contribute to a sense of protection, security and territoriality. Gehl mentions Oscar Newman's guidance provided in *Defensible Space*<sup>21</sup> where he welcomes transitional space/s between private and public, but these need to be well-defined where the public can distinguish between public, semi-public and private, and he especially alludes to changes in levels as a possible tactic (the same is also referred by Bobić and N. John Habraken).<sup>22</sup> So we can conclude that the "soft edge" defines places where the city and building meet, whereas the *edge* defines space as place. Due to perforations of the *edge*, exchange between the inside and outside takes place, contributing to the possible creation of a common zone along the *edge*. In many occasions this provides opportunities for sitting, standing and more. "The edge is a really good place to be in the city" and "life grows from the edge towards the middle".

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<sup>17</sup> Gehl focuses on the experience of the pedestrian and says that every four seconds we should see something different; this new or difference thing can be a small change. It is a way of keeping the pedestrian entertained and to some extent engaged and the environment working to her rhythm. Therefore, vertical lines in contrast to horizontal lines supports this. If we constantly receive stimulus in a structured manner, then a journey may feel shorter than physically is or longer depending on how these are.

<sup>18</sup> Hard edges are edges with no openings, closed or very few doors on ground floors. Façades that have little interaction with the outside; therefore, do not generate city life.

<sup>19</sup> Whyte also uses the same sentence.

<sup>20</sup> Jan Gehl, *Cities for People* (Washington, Covelo, London: Island Press 2010), pp.75-89

<sup>21</sup> Oscar Newman, *Defensible Space. People and Design in the Violent City* (London: Architectural Press, 1972).

<sup>22</sup> N. John Habraken & ed by Jonathan Teicher, *The Structure of the Ordinary. Form and Control in the Built Environment* (Cambridge, Mass and London, England: MIT Press, 1999), pp.22-24.

To understand the importance Gehl devotes to the “soft edge”, it is necessary to revisit the criteria he establishes to assess the quality of the public space.<sup>23</sup> In his latest book *How to Study Public Life*,<sup>24</sup> he presents 43 criteria for the assessment of public space qualities. The criteria are structured into four main groups and the relevant ones for this study are under “design”, subdivided into a further three groups: 1) Structure of pedestrian systems including six aspects; 2) Designing the spaces – Designing the edges including four aspects and relevant to this research; and 3) Designing/Detailing the public spaces, that includes 16 aspects which he reduced to just 12, becoming the final criteria to assess public space and already presented in his previous book referenced above and *New City Life*.<sup>25</sup> The 12 criteria are organised under three themes: Protection with three criteria, comfort with six and delight with six and all presented on a matrix. Within the 12 criteria, in number four the edge is implied: Protection against traffic and accidents (feeling safe), protection against crime and violence (feeling secure)<sup>26</sup> and opportunities to stand and opportunities to sit.<sup>27</sup> Nonetheless, the implicit representation of the edge in the criteria is clear after reading his book *Cities for People* but there is no specific part devoted to the edge.

Thus, the edge is relevant to the spatial experience of the inhabitant. This may be physical, but it also has a psychological impact. For instance, it can contribute to defining territory and sense of safety in residential areas. The edge has dimension; it is not just a line; it can be inhabited, and activity can grow from it affecting the centre.

### **People’s Use and Activities Defining the *Double Edge***

In some respects, the sociologist Whyte<sup>28</sup> could be considered the counterpart of Gehl in America but with a different background. Whyte was the pioneer of “*The Street Life Project*”, which started in 1970 in New York, whereas Gehl was the precursor of pedestrianisation based

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<sup>23</sup> This probably is his main contribution to the field of urban design alongside the classification of activities and their correlation with the quality of space

<sup>24</sup> Jan Gehl, *How to Study Public Life* (Washington, Covelo, London: Island Press, 2013), pp.106-107.

<sup>25</sup> Jan Gehl, Lars Gemzøe, Sia Kirknaes & Britt Søndergaard, *New City Life* (Copenhagen: Danish Architectural Press, 2006).

<sup>26</sup> Safety and security is a feeling experienced and desired in all cultures and it is especially important in residential areas where personal territory is a key aspect.

<sup>27</sup> Jan Gehl, *Cities for People*, pp.239.

<sup>28</sup> Whyte was an American sociologist, urbanist and writer. He mainly studied public life in New York’s streets and open spaces.

on his studies carried out between 1962 and 1996.<sup>29</sup> Whyte is renowned for his observations applying clear protocols. However, both authors put people first<sup>30</sup> in their investigations with the aim of understanding people's behaviour in everyday situations to deduct their needs and wishes, using comparable and in some cases similar methodologies.<sup>31</sup> Whyte studied the specifics of how a person behaves, how people relate to each other and how this happens in the public realm, reflecting his sociological background.<sup>32</sup> The environment is the backdrop and the person is in the foreground leading the research methods and analysis. He found out that there are contradictions between what people say they do in the public realm in informal chats, questionnaires or interviews, compared with what they actually do.<sup>33</sup> An example of this is when people say that they want to see but not to be seen but they behave in a contradictory way.<sup>34</sup> This "see and be seen" somehow informs the way the public realm is used and these two things happen in the centre, but in many cases between the centre and the limit creating tensions<sup>35</sup> between the two, alluding in an indirect way to the limit. Thus, Whyte does not corroborate Gehl's view of the symbiosis between the limit and the centre, or the limit being essential for the centre to work.

The limit is implicit in many of his examples, but he does not reflect specifically upon the limit, boundary, border, transition or in-between. For instance, he recalls that most encounters take place at corners, at the intersection between streets, and at entrances of busy commercial

<sup>29</sup> And published in Jan Gehl and Gemzoe Lars, *Public Spaces Public Life* 3rd edn. (Copenhagen: Danish Arkitektens Forlag, 2004), p.7, the first publication in English dates from 1996.

<sup>30</sup> Nonetheless, conceptually, they begin from slightly different approaches which in turn influences the way they present their research and outcomes. Gehl was interested in finding out why a public space works and for him this is defined by the number of people inhabiting the space, plus the time they inhabit it for. Therefore, he studied how people use the public space aiming to understand the triangulation between the person, people and the environment though with great attention on the latter to inform design. In Whyte's work people are very much at the front of his observations.

<sup>31</sup> Whyte conducted first hand observations of public spaces focusing on individuals, groups behaviour and paying special attention to how many people inhabited the space at one time, length of their stay and activities. Gehl recorded similar situations but both developed different protocols. Whyte used the camera to take photos at equal times enabling him to acquire data for long periods of time and to understand overall rhythm of spaces. Whereas Gehl followed people, mapped inhabitation and so and he also conducted questionnaires and interviews. Whyte and his team, where appropriate, will record in maps and tables inhabitations using a specific coding that it is comparable to Gehl's.

<sup>32</sup> Perhaps one of the differences between both authors is that Gehl agrees with the statement that the environment determines people and people determine the environment; there is a symbiotic relationship between them. Whereas Whyte is interested in people's behaviours and needs, and the individual is the focus and the environment serves to the individual.

<sup>33</sup> William H. Whyte, *City: Rediscovering the Center* (New York, London: Doubleday, 1988), p.11.

<sup>34</sup> Gehl also presents this idea and Cullen dwells on the same presented through the analogy of the city as a theatre where you go to "see and be seen" and Sennett also refers to this in his book *The Fall of Public Man* (London: Penguin Books, 2002), first published in 1977 by Alfred A. Knopf Inc., New York.

<sup>35</sup> Habraken explains that the relation and dynamics between private and public are defined by the degree and nature of tensions between the two and types and levels of negations.



buildings and at the edge between the inside and outside. He explains the “sidewalk ballet” and how this is associated with the locations mentioned above whereby he could predict people’s reaction when encountering people they know. He talks about how watchers-to see but also to be seen<sup>36</sup>- place themselves at the edge of the street- and this can be a low wall that limits but it also acts as a bench. He considers the façade as a thick wall, a limit where different things take place such as people sitting on it, playing chess or exhibiting art work. Once more the façade is a location for waiting, seeing things, exhibiting. In other cases, the window in the façade frames the outside, while simultaneously, the inside becomes the stage to be contemplated from the outside reversing the traditional role of the window: to see and be seen.

He also talks about the good use of the limit in the plazas on 5<sup>th</sup> avenue which have a double function, whereby at one level it is interpreted as a limit and on another it is a link between the two areas it defines. Subsequently, Whyte alludes to the limit and to elements that are limits but which also have other functions. His conclusions however are comparable and complementary to those of Gehl, who is more specific especially about the importance of the limit in the public realm.

### **The Membrane Versus the *Border Vacuum***

Jane Jacobs<sup>37</sup> dedicates the first part of her renowned book *The Death and Life of Great American Cities* published in 1961 to the understanding of people’s social behaviour in cities as the basis for the second part about the economic behaviour of cities,<sup>38</sup> and in different parts she refers to the *border*. In the opening of the chapter “The uses of sidewalks: safe”, she says that “a city sidewalk by itself is nothing... It means something only in conjunction with the buildings and other uses that border it, or border other sidewalks very near it”<sup>39</sup> and the same can be said about the streets. The bordering uses and users of the street and sidewalks are active participants, making the sidewalks and street safe and this is one of the most valued attributes of citizens. She devotes the chapter to narrating anecdotes of her mixed-use neighbourhood and drawing from them, we understand that these happen from the façade, creating an in-between of around two metres from the façade into the building and four metres from the façade into the street. Of course, this refer to an exemplary lively and safe neighbourhood, but something

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<sup>36</sup> Whyte, *City: Rediscovering the Center*, pp.28-30.

<sup>37</sup> Jane Jacobs was an American-Canadian journalist and activist who influenced urban studies and opposed to the plans for Robert Moses the city planners for New York.

<sup>38</sup> Jacobs, p.24.

<sup>39</sup> Ibid., p.39.

different will take place when this urban condition is absent. These in-betweens would not exist if the buildings were the same but, due to residents' fears, insecurities or different modes of living replaced the idea of the façade operating as a membrane, with the idea of islands with their associated boundaries.<sup>40</sup> This argument is very close to that of Gehl and Whyte, but extends it further by identifying the width of the strip, defining a type of limit or in-between.

Jacobs also refers to the importance of the rim of the neighbourhood parks and their relationship to the hinterland and specifically to diversity as this will affect the rhythm<sup>41</sup> of the park. If the rim and the hinterland have a dominating use with users having the same daily timetable, the park is used at very specific hours but is empty at other times, thus becoming a vacuum.<sup>42</sup> Furthermore, the park changes if you change its surroundings; therefore from the outside (the limit) you can change the performance of the centre. Successful parks help to knit together the intricacy of diverse functions of the hinterland, and they are neither barriers nor do they create vacuums.<sup>43</sup> She opens the chapter "The curse of border vacuums" with a reflection on borders:<sup>44</sup>

*"A border – the perimeter of a single massive or stretched-out use of territory-forms the edge of an area of "ordinary" city. Often borders are thought of as passive objects, or matter-of-factly just edges. However, a border exerts an active influence."<sup>45</sup>*

The border vacuum takes place when there is a lack of diversity and therefore also of vitality. This is presented in railroad tracks, waterfronts, campuses, large parks or parking areas, etc as a result of mono-functional areas and low intensity of use. The border of the area forms a vacuum to the adjoining area. To understand this effect, she suggests dividing all the land of the city into two types. Firstly, "general land" refers to the land where people can move freely from

<sup>40</sup> Here understood as a barrier with a negative connotation. See Ibid., pp.56-57.

<sup>41</sup> Whyte also refers to the rhythm of the street depending of the uses of the building and how these define people's coming and goings defining the public life on the streets reflected in a form of rhythm due to its cyclic repetitions: daily, weekly, sessional, yearly depending about the place and activities taking place. He explains in detail the rhythm of the 5<sup>th</sup> Avenue where offices are the main and leading usage.

<sup>42</sup> Jacobs, pp.107-108.

<sup>43</sup> Ibid., p.111.

<sup>44</sup> Borders are contested lines that continuously change their influence and meaning. It is a term used by geographers and sociologists to refer to the frontier between countries and these have a jurisdictional meaning and power. From these lines laws are imagined and implemented that apply to the two sides of the border or just one side. The two countries redefine their identities from this line.

<sup>45</sup> Ibid., p.271.

here to there and back and traverse it, including the streets, small parks, plazas and lobbies of public buildings. The second type, “special land”, refers to “something that is in the way, so far as the general public on foot is concerned. It is a geographic obstacle”.<sup>46</sup> It supports the use of the general land and supports people’s dwelling their home, work or other activities. These two kinds of land need from each other “but there is always certain tension in their relationship”.<sup>47</sup> Thus, in the join between these two main types of land there is a limit characterised by tension and negotiation. She concludes that by understanding these borders<sup>48</sup> we should avoid producing them. For her, “diversity”, used in the broad sense, is the remedy for these situations, though in her section on “Salvaging project”, she acknowledges that special tactics are required to salvage these latter situations.

### **The Limit Defining the Ever-Changing View**

Jacobs believes that there is a difference between complexity and chaos in the environment. We experience chaos in the city, but this has an underlying order. The city needs a complex order that is read as chaos in order to function and succeed, and this is essential to street safety and city freedom.<sup>49</sup> Cullen<sup>50</sup> would support her argument about the complex order of the city, as he aims to understand order among complexity while inhabiting and experiencing the city. However, the similarities between both authors end here as they have completely different approaches. Cullen in 1961 published *Townscape* and in 1971 re-published it under the title *The Concise Townscape*, based on the idea of townscape<sup>51</sup> coined by Thomas Sharp in his study of Oxford in 1948.<sup>52</sup> Cullen had studied it since 1949 when he joined the Architecture Review as editor. The “art of relationship”<sup>53</sup> is fundamental to Cullen’s theory as a way of seeing:

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<sup>46</sup> Ibid., p.276.

<sup>47</sup> Ibid., p.277.

<sup>48</sup> In the way border is framed here, it is understood as a barrier, something that separates, and it is difficult to be overcome or transgressed. She proposed diversity helping with relationships, overlapping and/or linking.

<sup>49</sup> Alice Sparberg Alexiou, *Jane Jacobs: Urban Visionary* (New Brunswick, New Jersey, London: Rutgers University Press, 2006) p.176.

<sup>50</sup> Gordon Cullen was a British journalist and architect and urban planner consultant. He worked for the Architectural Review (AR) taking different roles and during that period he became interested in planning. After leaving AR he became an independent writer and through his writings influenced the profession of Town Planning.

<sup>51</sup> Townscape is defined as “the visual appearance of a town; the landscape or layout of a town or other urban area; urban scenery” by the online Oxford English Dictionary (OED online Oxford Press <<http://www.oed.com/view/Entry/204075>> [Accessed 18 April 2018].

<sup>52</sup> *The Urban Dictionary of Urbanism* states that Sharp is the first using the word in this sense and its meaning was developed by collaborators of the AR (Robert Cowan, *The Dictionary of Urbanism* (Tisbury, Wiltshire: Streetwise Press Limited, 2005) p.400) where Cullen was an important figure.

<sup>53</sup> Charles W. Moore and Gerald Allen in their book *Dimensions. Space, Shape & Scale in Architecture* (New

noting that many different elements like buildings, trees, water, walls, railings, etc form the environment. Each of these elements has its own attributes and these are put together to create the whole, releasing visual drama. The attributes of these elements are exaggerated, enhanced or understood depending on how these relate to the whole and to different parts, and how the different elements and parts are entwined defining the uniqueness of the context. This way of seeing was developed further, based on the characteristics of our everyday experience of the built environment. This is comprehended through sight and the kinaesthetic experience whereby the body takes positions in the environment – in space. As we move through space the body takes positions and associated to this is the ever-changing views that the subject experiences. Therefore, the urban environment is experienced through the juxtaposition of these views, giving form to what Cullen calls the “serial view”. Cullen records the “serial view” with a plan, usually a figure-ground, where he numbers all the locations from which the views have been experienced and this plan is completed with a perspective for each location.

Nowadays this is a recognised method whereby the perspectives may be substituted for photos. The views constituting the “serial view” are generated by the symbiotic relationship between the body and its relative position within the environment creating reactions. These reactions are expressed with what Cullen calls the “unspoken words *I am outside it, I am entering it, I am in the middle of it*”<sup>54</sup> and these correlate to the “here” and to the reciprocal “there”. These two terms relate to two different things with an inherent limit somewhere in between. For example, I am leaving the plaza therefore entering the park: two elements that are put next to each other, automatically establishing relationships which define the limit itself; perhaps the in-between. I am right under the arches – “here” - from which on one side I see the street – the “there” - and on the other side the square – the “other there”. In this case, the limit between the two “theres” is the “here” of the arches; a limit for the two adjacent spaces and an element that essentially puts the two spaces together and defines the way these are related and experienced. This reminds us of the horizon;<sup>55</sup> the ultimate limit between the “here” and the “there” that is informing Cullen’s reading.

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York: Architectural Record Books, 1976), in the last section refer to architecture as an assembly of things and how these are put together emanating the magic (p.175). The section on “scale” simply explains what they mean with “put together” relating to something in relation to something else (p.17), to sets of relations (p.21) and refer to a façade that seems a choreography where order is perceived among surprises and ambiguities (p.22). Their reflections are on architecture and public spaces defined by/from the buildings without referring to the open space independently though it is applicable to the spaces in between.

<sup>54</sup> Cullen, p.9.

<sup>55</sup> The horizon is the boundary-line where the earth and sky meet. Here, it refers to a boundary-line that may not correlate with the canonical horizon, but it acts like it. It is there, I can see it but I cannot touch it. It repositions again and again as I move relative to my eye.

This “here” and “there” of Cullen relates to the “architectural synthesis of foreground, middle ground and distant view” of Steven Holl, Juhani Pallasmaa and Alberto Pérez-Gómez. Subjective and objective qualities fuse and become part of the “experiential continuum” unfolding from the enmeshed experiences and intrinsic views. Their short description sheds light on these relationships: “When we sit at a desk in a room by a window, the distant view, light from the window, floor material, wood of the desk, and eraser in hand begin to merge perceptually”. The two grounds and view –crucial “in the creation of architectural space”- are juxtaposed with a limit in between, but in the design phase these can be explored separately though ultimately they will be experienced and perceived together.<sup>56</sup>

Cullen also refers to diversion in relation to “conformity”, evoking *this and that*, referring again to the art of relationship where the individual and juxtaposition of properties of the elements become truly themselves.<sup>57</sup> This concept is not far from the “here” and “there” but refers to elements or properties within the “here”, but with an implicit undefined limit between the two: *this and that*. In this case it is the materials, properties or form of objects which differentiate the one from the other.

### **Playful Boundaries, and Thresholds**

Stevens,<sup>58</sup> in his book *The Ludic City. Exploring the Potential of Public Spaces*, explores “the playful uses of urban space”<sup>59</sup> focusing on people’s experiences in the urban environment where the latter is the backdrop and people in the forefront, similar to the studies of Whyte and Gehl. Although Stevens points out that to some extent experiences are possible, due to spatial qualities and everyday activities associated with spaces encouraging and supporting certain playful actions. He provides detailed descriptions of people’s behaviour examining the relationship between specific settings and their playful use. These are catalogued under five types: paths, intersections, boundaries, thresholds and props of which two (or perhaps three) are related to this research directly. Boundaries are presented as limits defining what individuals can do, see and where they can go, providing a framework which people can take

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<sup>56</sup> Steven Holl, Juhani Pallasmaa, Alberto Pérez-Gómez, *The Question of Perception. Phenomenology of Architecture* (San Francisco: William Stout Publishers, 2006), p.45.

<sup>57</sup> Ibid., pp.11-12.

<sup>58</sup> Stevens is an academic researcher with a background in architecture and urban planning who received his education in Australia and USA. He has worked in the UK and Australia and has conducted research in many different countries like Britain, Germany, USA, Korea, France, Canada, Mexico and Hungary.

<sup>59</sup> Stevens, p.1.

advantage of if they interact with them in a direct or indirect way. Furthermore, the limit proposes opportunities and brings stimulus. “People use boundaries to shape their experience of the city and their play” restricting as well as broadening possibilities.<sup>60</sup> Stevens alludes to different types of boundaries without classifying them and uses the terms limit, boundary and edge in a loose manner while he defines the threshold.<sup>61</sup> People position themselves in relation to boundaries, test, cross and transgress them. The boundary regulates the level and type of social engagement in and with the environment. Well defined boundaries enhance “people’s togetherness and their distinctiveness”<sup>62</sup> but also can define place by segregating it, creating marginal places while solid edges may create tension.

The boundary chapter is organised under seven headings based on playful acts that are determined by the physical boundary condition. In some cases, this is solid with clear presence and in others it is soft, sophisticated and relative. The first heading is on “edge effect” coined by De Jorge (already mentioned above) and describes activities that take place at the edge of space. Like Alexander and Gehl, he agrees on the importance of the boundary, affirming that playful acts commence at the boundary where people feel secure and then move to riskier positions. “Adjacency” refers to playful acts that happen alongside movement and are related to soft edges. He refers to people playing cards or performers placing themselves to the side of paths between people moving and the curb of pavement or on the line of trees, benches and lamp posts. The positioning is defined by subtle appreciations by the individual/s but safety, visibility, possibility of triangulation and in the case of performance the theatrical distance of five-six metres, are some of the determining aspects. The third heading is “backdrops” referring to closed edges: blank facades or with no entrances, absence of cross streets providing clear orientation and backdrop to the display. In this case, poor design situations have been taken advantage of, bringing some benefits. Thereafter, he moves on to describe situations related to control and transgression. The previous parts related to edges, which provided orientation and distances between them and audiences. Here, he refers to elements that act as boundaries, regulating the relationship between the performer and the audience where the performer

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<sup>60</sup> Ibid., p.115.

<sup>61</sup> The threshold, part of the doorway (an architectural element physically belonging to the building) is central to the act of entering and leaving a building; arriving and departing. Thus, architects design in detail the physicality and materiality of this defining element but also moment. Its phenomenological condition is explored in relation to its physicality by some like Aldo Van Eyck in his essay ‘Doorsteps’ published in Alison Smithson, ed., *Team 10 Primer* (Boston: MIT Press, 1968), pp.96-105; Richard Lang in his essay ‘The Dwelling Door: Towards a phenomenology of transition’ in David Seamon, Robert Mugerauer ed. *Dwelling, Place and Environment. Towards a Phenomenology of Person and World* (Malabar, Florida: Krieger Publishing Company, 1985), pp.201-213 and Simon Unwin, *Doorway* (Oxon: Routledge, 2007), to name a few. And, the threshold has led to the idea of the liminal in anthropology.

<sup>62</sup> Stevens, p.114.

retains a certain control and the audience and the passer-by transgress the boundary. On many occasions, the edges in these situations are just lines drawn on the floor by the performer as a temporary “soft edge”, or similarly carrying a certain degree of uncertainty as “roles, rules and relations are not well understood or mapped out on the ground, there is not necessarily danger”.<sup>63</sup> Under the heading of “marginality”, he covers two different types of boundaries: firstly, he refers to an area whereby the area itself is the boundary, or a marginal zone able to seclude itself from the wider urban fabric so that it is comparatively unregulated in terms of access and use. Secondly, he presents formal marginal spaces that are segregated from main flows and spaces. On many occasions, these are at a different level, with limited visibility from the main flows and spaces. He describes playful acts along the river where a retaining wall articulates the change of level as well as defining the setting; its specific qualities and users select the setting based on the specificity and marginality. A “place apart” relates to leisure understood as “by nature, a diverse, inclusive, messy ‘function’ which does not sit easily with the desires of order and predictability... Leisure does not tend to respect boundaries”.<sup>64</sup> He refers to people’s creativity in using elements in an unconventional way and people are prepared to take risk to set a place aside for themselves. The section “testing the edge” is devoted to boundaries and edges that are fun elements for the user engaging physically with the edge, taking risks. It is primarily about skateboarders, cyclists or similar types of users who actively and physically interact and feel (many times involving actual physical contact; pressing on) the edge. Therefore, the boundary provides opportunities to directly interact with it and mark our experience of the urban environment.

The chapter that follows defines the “threshold” as “a point on the boundary between inside and outside that can be opened. A wide range of perceptions, movements and social encounters become possible there”<sup>65</sup> and it comes in different architectural forms and is designed for practical as well as ceremonial requirements. Stevens catalogues the threshold experiences in five ways, starting with the “convergence” that relates to the threshold associated with large public buildings characterised by a generous forecourt fronting the building with a wide staircase correlating with the large formal façade that leads to an arch or colonnade that forms the entry. In many cases these are dimensioned for specific flows of people. These are gathering points where chance and risk come together, and they can be intense. A high frequency of thresholds of different land use buildings in a street favours the amount and variety of new and unplanned experiences. Afterwards, he introduces the threshold as the “passage of time”, suggesting that

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<sup>63</sup> Stevens, pp.131-132.

<sup>64</sup> Ibid., p.142.

<sup>65</sup> Ibid., p.152.

thresholds are designed for people to move through them not to spend time on them, but people linger on them and if events happen in or around them, then people spend more time in them. Alexander et.al.<sup>66</sup> point out that the threshold in private buildings mediates with the physical transition as well as with the psychological change between the outside and inside in two respects: the individual moving from outside to inside who has to adapt to a different expected social behaviour, moving from a place associated with uncertainty to a place with a degree of certainty, moving from a place governed by physical activity to a place governed by intellectual activity, from a place with little or no regulation to a regulated place. The section “a space apart” refers to the threshold composed of a number of elements and spaces interlinked that create a smooth and gradual transition between inside and outside, including semi-private large foyers and semi-public spaces, forecourts, as well as canopies and/or grand staircases, generous landings, large entrances and so on. The particularity of this case is that it becomes a social space, a place entailing “gradations of perception, regulation and exposure”.<sup>67</sup> He describes how the landing between the staircase and the entrance is “a place to wait and rest which is separated horizontally and vertically from both the regulated indoors and the constant movement of the street”,<sup>68</sup> where the elevated landing optimizes the sense of publicness. The fourth section is devoted to the “act of passage” related to liminality. The threshold unites and separates two domains, and/or two different conditions. He describes the traditional case of the use of the threshold in weddings as a symbol marking the change of personal status from single to married, the formalization of a relationship where the passing through the doorway symbolises the before and after. Then, he describes the use of staircases or windows framing wedding pictures or similar occasions. The final section is on “blurred space in-between” where Stevens starts by saying that some thresholds are distinctive and controlled and others are “nebulous and ill-defined”<sup>69</sup> and these latter characteristics encourage playful acts. He describes three situations associated with three specific thresholds. The first is about a blurred threshold between the outside-the street- and the inside-the shop. He refers to aspects like music helping to blur the distinction and how there is a triangulation between the music overflowing from the shop, a person dancing to the music and people passing by. The second case is a reflection upon shops that sell games, whereby video screens are located at the edge of the property line aiming to distract the pedestrian as they feel attracted to the content of the screens; these produce lights and sound and are located to favour the viewpoint of the pedestrian.<sup>70</sup> The third

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<sup>66</sup> Alexander et al., p.552.

<sup>67</sup> Stevens, p.163.

<sup>68</sup> Huizinga, 1970 in Ibid. p.164.

<sup>69</sup> Ibid., p.170.

<sup>70</sup> In the first two cases the physical boundary is transgressed creating a contradiction and defining our perception.



case relates to the first case as it involves music though it is about a restaurant/café instead of a shop. This is between the physical inside and outside, music and a couple moving from inside to outside to dance and then moving back inside. In all these three cases the social boundary has been blurred (and perhaps transgressed) using music, images, lighting, smells that stimulate our senses. This is possible as the traditional shopfront has vanished in the sense that the frontage is fully opened so that the outside flows into the inside, resulting in an increase of permeability. In most cases, a change of flooring between the inside and outside results in a faint line and this is weaker where there is no change of level between the two domains.<sup>71</sup> The shopfront does not have the desire to completely vanish as it needs to have presence to attract. Therefore, the shop is framed by the formalized upper aperture containing the name of the enterprise. Stevens concludes that the threshold is “a place of movement”,<sup>72</sup> it separates and connects, it wants to be defensible but is also unregulated and disarranged, it provides opportunities as well as risks and it can create an indeterminate; an in-between. The threshold can affect people’s speed of movement as well as how long they spend in that place, offer opportunities, and in many cases sensory stimuli are used to affect and manipulate all the above. The threshold holds a symbolism and it is related to the concept of liminality.

Thus, boundaries and thresholds are presented here as different types of limits. Each includes significant variable qualities and spatial configurations presenting potential and restrictions. These are inhabitable and noticed through engagement; each triggers and shapes how we engage with the environment and other people differently and as a result defines our experiences and perceptions.

## **The Limit in Normative Thinking**

Some urban thinkers as such as Lynch, Alexander, Marcus & Francis and Ford, who are included in this section, have identified principles and/or aspects to inform design and the basis on which to assess spaces. This section offers a chronological review of the different approaches, deploying different methodologies and reaching different outcomes of these authors with different backgrounds where the limit has been considered and included in different measure.

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<sup>71</sup> Domains apply to situation when the shop is part of a public street though these tactics go far in shopping centres when the circulation spaces and shops belong to the same domain and both have been designed and built at once.

<sup>72</sup> Ibid., p.176.

As with Cullen, Lynch<sup>73</sup> was intrigued about how, as part of our everyday life, we experience and perceive the urban environment through the sense of sight, but he focused on legibility instead of understanding the impact on our emotional reactions.<sup>74</sup> In his influential book *The Image of the City*, he presented the visual components of what constitutes the mental image of the city. The edge is one of the five identified elements that makes “the city image”. Edges are defined as “linear elements not used or considered as paths”,<sup>75</sup> usually they are the boundary between two things,<sup>76</sup> they take lateral positions and are longitudinal with directional qualities. An edge may be a barrier and, in many cases penetrable but fragmented. In other situations, it unites by acting as a seam creating different effects. In one case, the edge is unpleasant, but in another it is positive, able to bring “people together by attracting to itself. It acts ambiguously either as lineal node, edge of path for various people and various times”.<sup>77</sup> These edge elements are usually not as dominant as paths but are for many people important ordering features.<sup>78</sup> Whilst describing how to design the edge, Lynch distinguishes between edges linking areas with different or similar natures and notes how to intervene in the longitudinal and transversal dimensions. When the edge is between different areas, it needs to have a recognisably continuous form and transversally needs to be visible from a distance, mark a transitional area and join two sides together. On the contrary, if the two sides are of a similar nature then the transversal two sides of the edge may be differentiated enhancing the inside-outside sense and thus helping with orientation. This edge may be shaped to include a gradation with perhaps one end standing out. When the edge is discontinuous the ends act as anchors positioning it, and the transversal dimension can be shaped with visual or motion penetrations or to include gradations; this can result in a feature, or can be seamless and interwoven with its surroundings. Lynch does not allude to land uses or activities. Neither does he consider the scale or size of the longitudinal or transversal dimensions, the difference between them or how they affect the rhythm related to their size. He is clear, although he notes the dichotomies intrinsic to the edge: it unites and separates, it may be continuous and/or discontinuous, it has a longitudinal and transversal dimension. The edge acts differently depending on how these dichotomies are physically manifested having an impact on people’s perception of the environment.

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<sup>73</sup> Lynch was an American urban planner, scholar and writer who attempted architecture and engineering prior to taking a degree in planning.

<sup>74</sup> Carmona et al. p.134 & Larice and Macdonald, p.167.

<sup>75</sup> Lynch, p.47.

<sup>76</sup> Ibid., pp.47-62.

<sup>77</sup> Ibid., p.65.

<sup>78</sup> Ibid., pp.62-65.

## Edge, Boundary, Transition in the Pattern Language

Gehl mentions and agrees with Alexander about the “edge effect” where action and activities grow from the edge towards the middle of the space: “if the edge fails then the space never becomes lively”.<sup>79</sup> Alexander<sup>80</sup> published with his collaborators a series of books on a new approach to architecture and planning. Unlike the previous authors, who learned from the existing urban environment, Alexander’s approach is the reverse; he questions how buildings, streets, neighbourhoods and towns come about, what things should be considered during the design process before these are built. He believes that buildings and towns can be produced “by using languages<sup>81</sup> which he calls pattern languages. A pattern language gives each person who uses it the power to create an infinite variety of new and unique buildings, just as his ordinary language gives him the power to create an infinite variety of sentences”.<sup>82</sup> Pattern languages can assist the design of a house, a neighbourhood, a public building, conduct a workshop or guide the actual construction. The middle book *A Pattern Language* published in 1977 by Alexander and his collaborators presents a possible language, the archetypal core formed by 253 patterns. The patterns are displayed from the large to the very small scale and all follow the same template for rigour, ease of use and as a network, each indicating their interdependency and correlation with other patterns. Each pattern is dedicated to a common issue identifying the problem and solution in such a way that each time somebody uses the pattern the actual formalisation is different. The problem and solution can be judged and modified by the user without losing the essence.<sup>83</sup> The boundary, bounding, edge and transition have been considered in a good number of patterns and in some of these the referred term is critical. For example, pattern '15 Neighbourhood Boundary' briefly discusses the importance of the boundary in relation to identity and the boundary to become an element per se.<sup>84</sup> He refers to the analogy of transactions through the membrane of a cell, as Jacobs and later on Sennett, which is complex, acting differently in both directions.<sup>85</sup> It directly relates to patterns 13, 14,

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<sup>79</sup> Gehl, *Space Between Buildings* p.150, Alexander et al. p.600.

<sup>80</sup> Christopher Alexander was a British architect working at Berkeley, University of California, and a longstanding director of the Center for Environmental Structure. The book *A Pattern Language* was produced by a group of academics but I just refer to Alexander as a the most visible figure and director of the research centre without wanting to undermine the collaborators.

<sup>81</sup> Language, here, is used as an analogy referring to symbols with meaning which are combined following rules by a close system allowing indefinite variations. The generic system is personalised by the individual and it is understood among all knowing the system independently to personalisation.

<sup>82</sup> Alexander et al, p.xi.

<sup>83</sup> Ibid., p. x-xiii.

<sup>84</sup> Ibid., p.90.

<sup>85</sup> N. J. Habraken, 1998 also considers the selective and different interchange between the two sides of the membrane depending on the direction; the transaction is easier from the private to the public and more

43 and others and has an echo of Lynch's district and edge. Pattern '112 Entrance Transition' recommends the provision of a physical in-between marked with a change of light, direction, sound, level,... to harmonise the tensions from the public realm (atmospheres) and mediate the public with the private or inside and outside. The section on 'Activity Pockets' voices the importance of the edge for the space to work and introduces the concept of "scalloped edge" concerning the tension created by the edge to make the space lively.<sup>86</sup> Other patterns are included such as arcades, building fronts, building edges, openings to the street, intimacy gradients, and changes of level. All are considered with the edge featuring strongly. This work explicitly endorses the boundary, the edge and transition as crucial features of the built environment and acknowledges their diversity and complexity.

### **Boundary and Edge in Practice**

The book *People Places. Design Guidelines for Urban Open Space* published in 1998 and edited by Cooper, Marcus and Francis<sup>87</sup> is the result of much research into American open social spaces based on surveying spaces and monitoring how these are used, in a similar manner to Whyte and Gehl. Most of the surveying work was conducted by the main authors and their students and most of the contributors to the book are landscape architects. Like Alexander, their work comes to fruition to influence design and, as with Alexander's work, the boundary and edge feature strongly. In contrast to the previous research presented, these authors focus on three groups of spaces without referring to the urban fabric as a whole. The categorisation is related to Habraken's territory and control of space and form, based on ownership and who can use the space; 1) publicly owned and used spaces, 2) privately owned but publicly accessible spaces, and 3) privately owned spaces accessible to specific groups. A total of seven types of spaces within the three groups are presented and each evaluates different case studies concluding with a design checklist. The concept of the limit is not equally relevant in all the types. For instance, in the neighbourhood parks and the hospital outdoor spaces the boundary is less present. In the 'Urban Plazas', there is a short section dedicated to boundaries and transitions. How the plaza is joined to the adjacent sidewalks is considered and it is noted that "the transition from

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resistant (stronger boundaries) from the public to the private.

<sup>86</sup> Alexander *et al*, p.600.

<sup>87</sup> Cooper Marcus and Francis taught together in the department of landscape architecture and architecture at the University of California, Berkeley and at the time of publishing *People Places* were working together as specialist consultants on user-needs analysis. Cooper Marcus is also co-author with Wendy Sarkissan of the well-regarded book *Housing as if People Mattered. Site Design Guidelines for Medium-density Family Housing* (Berkeley & Los Angeles, California: University of California Press, 1986).

the sidewalk to the plaza is one of the most important aspects of plaza design”.<sup>88</sup> The corporate foyer includes four categories defined by the type of transition, but the intricacies of the boundaries as part of these transitions are neither fully explained nor clear. Moreover, on the (type of) creation of sub-spaces, the boundary is mentioned explaining that “spatial subdivisions should be clear but subtle”,<sup>89</sup> evoking the porous boundary that Alexander and Jacobs related to the membrane of the cell though the term “porous” may not take into account the different performance in the two different directions. In the mini-parks and vest-pocket parks, the boundary is crucial due to the size of these spaces as different things collide in relatively small spaces and this juxtaposition needs to be controlled or structured from the junction, the limit. With the ‘Open Campus’ type, the boundary between building and open spaces is defined in a similar way to Gehl and Alexander, whereby the open spaces should be bounded, where the edge produces a high degree of use throughout the day supporting the vitality of the open space. The book also provides guidance on green boundaries and edges complementing the advice provided in previous sections for the different types of spaces. The sections on outdoor spaces in housing for the elderly and child care outdoor spaces are guided by the specificity of the users and have similarities with reflections upon the limit as transition and boundaries that frame and screen; it also relates to actual and psychological safety which is of prime importance for these two types of users. Across the sections some graphic detail is provided through pictures, diagrams, sketch plans and in some cases detailed plans which in most cases are more concrete and also more explicatory than the text. Although it is surprising that the section takes a secondary place in relation to the plan. Even though a plan is provided for all cases, the spaces are presented as islands with no context or are too schematic. Thus, adjacent limits to the space in question, such as the insertion of space within the urban fabric, entrances to buildings and accesses to spaces are omitted in many cases which is revealing when, for some types of spaces, it is acknowledged that the space needs to be bounded in a positive way to support its vitality. Hence, these authors mainly refer to transitions and in many cases this is made of subspaces which need to be clear but also help to integrate. When appropriate, the façade, as boundary can create a great amount of activity. Green can contribute in formalising boundaries and transitions and when designing for the elderly and children these should frame or screen, contributing to psychological safety.

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<sup>88</sup> Clare Cooper Marcus and Carolyn Francis, p.34.

<sup>89</sup> Ibid., p.36.

## Spaces Between Buildings

Ford,<sup>90</sup> in his book *The Spaces between Buildings* published in 2000, provides an inventory of spaces between buildings. Once again, the study is based on observations and historical studies on the north American city focusing on how spaces through time have evolved their role, form and meaning to understand the situation today. Particular emphasis has been given to the change of use with its repercussions on the symbolic meaning and possible embellishment. The preposition/adverb “between” takes the literal meaning, thus he considers all the spaces between buildings, shaped or not shaped by buildings. He structures his work into three sections and each is complemented with a photo-essay. The first section is devoted to spaces and conditions associated with the façade and elements and spaces immediately adjacent to it; the in-between public and private. The second section refers to spaces in which to stay between buildings or elements that help to shape them, such as the lawn in the private space between the public and domestic domains, but also the square or trees that help to shape the public realm. The final section is on spaces that are for moving through or provide access to buildings or spaces in which to stay between buildings. It also refers to car parking understood as transitional space.<sup>91</sup>

The first section ‘Building and Spaces Around Them’ covers the “architectural forms, façades and embellishment”<sup>92</sup> where he considers the evolution of the residential, commercial and retail façade, its decorative purpose and evolution through time and how this is affected by regulations and technologic advances. He also points out the increasing visibility of side and back façades affecting the urban landscape and the perception of the city. He concludes that the city has turned inside out. Some backs of buildings, due to the use of the car, have become fronts, as in these cases buildings are mainly entered through the back and the front has lost its main function, simply becoming a symbolic façade. Other façades, particularly in commercial buildings, are just symbolic due to technology as openings are no longer needed. Shopping centres are another example where space is reversed and where elements that define the street like lamp posts and benches are found in inner spaces. Thus, in all these cases there is a transgression of the traditional limit between public and private, between inside-outside where the spatial configuration and meaning has evolved redefining the limit.

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<sup>90</sup> Larry R. Ford was an American urban geography professor..

<sup>91</sup> Transitional space referring to time; a space used between two times dedicated to meaningful things that happen in specialised spaces.

<sup>92</sup> Ford, p.5.

The second section titled 'Lawns, Trees and Gardens in the City' with an associated photo essay on 'Shapers of Space' looks at the role of the lawn within private and public property and how its symbolic meaning has changed through time and how this has been regulated and has recently been affected by sustainable considerations. He also describes the introduction of trees into the city and the reasons, specifically mentioning that trees blur boundaries.<sup>93</sup> This chapter also covers the downtown plaza and its problems associated with high rise buildings and density. At the end of the chapter, questions around open spaces and associated vegetation are raised, suggesting that these could be designed differently, with a different understanding towards measurement, considering management in the long term and how vegetation is not just about embellishing the setting but also about contributing to identity.<sup>94</sup> Thus, the second section again discusses the evolution and meaning of another type of between and how this has evolved, and the limit is implicit but not explored in these terms.

The third section 'On Streets, Alleys, and Parking Areas', together with the photo section on 'Shapers for Access' revises spaces for movement and for storage such as the street with its pavement for vehicles and pedestrians, parking areas and garages. This section introduces the direct effects of the rapid growth of mobility of people and goods enabled by the transport revolution, which started in the middle of the XIX century and changed the urban landscape by the middle of the XX century, with considerable effects on people's lives. Alleys were first established in business areas due to the need for storage and to avoid disrupting the life of the street and later this was introduced in residential areas. Existing alleys mutated providing access to garages instead of accessing mews and parking lots, buildings for parking followed. These spaces suffered transformations. In business areas was due to the intensification of parking and the use of backyards as ancillary spaces. In residential areas, the garage migrated from its original position due to the discouragement of alleys and reinforced by regulations changing the position of the garage to become an integral element of the house, in some cases taking 60-80% of the façade. Nevertheless, recently the alley has had a renaissance, considered as a retreat providing an alternative to the busy street. The garage in residential areas is mutating to an in-between providing life to the alley while defining a backyard with the back of house and the garage. As a result, now they have become a family office or play room and are becoming active frontages framing the private inner space. In other cases, the alley has become a space for art and the pedestrian.

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<sup>93</sup> Ibid., p.120.

<sup>94</sup> Based on other authors, as Doreen Massey, the boundary has a role to contribute to define identity and for Habraken these elements will re-define territory and then the identity.

Despite having a title that intuitively relates to the between, hence to the limit, boundary and edges, it is surprising how these terms have been eluded. The author defines “between” in a generic way applying to all elements that are not buildings aligning with their historic evolution<sup>95</sup> in the city, providing more emphasis on those which are secondary in terms of size. The author reviews a great number of elements between buildings, not as interfaces, but rather as individual elements per se independent from the rest. He writes a great deal about the façade, but he never mentions the space beyond the skin (façade), distinguishing the inside from the outside, or considering this as an element capable of establishing a triangulation of these two and the observer or user. The sidewalks are also spaces in their own right which people have appropriated in some form, as Jacobs had already highlighted, but he does not establish any intrinsic spatial relations with other collateral elements. The same applies to the lawn and trees. Ford refers to the boundary zone creating distance between inside and outside, defining a transition zone of steps, stairways or others to link with the inside of the building at a higher level in relation to the street to create distance from the old unpaved and muddy street. Although the study offers a brief view of the limit per se, it is relevant in the way the author considers the limit solved by spaces in-between. While the analysis of the spatial configuration and its changes through history is vague, the presentation of the evolution of the meanings of the in-betweens are worth reviewing as few authors cover this aspect.

## **The Limit in the Morphological Approach**

The third group is reserved for authors whose work has a morphological approach and, in many cases, it relates to cartographical and/or mapping studies. Some authors included in this group, like White and Bobić, have a mixed approach sitting between the urban life group and this one or even between all three groups.

### **Nolli and the Figure-Ground Map in Relation to the Limit**

Between 1736 and 1748, the Italian architect and surveyor Giambattista Nolli was commissioned by Pope Benedict XIV to survey Rome and worked on the ichnographic map (ground plan) of the *Pianta Grande di Roma*, nowadays commonly known as the Nolli map. The predecessor of Nolli’s map was that of Leonardo Bufalini, whose map of Rome was published in 1551 and

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<sup>95</sup> I use element instead of space because Ford refers to space to anything that it is not a building. He refers to any void without considering the topological characteristics of space.



is considered a pioneering work in cartography and archaeology. Nolli's version was a more advanced representation of Rome, achieving the accuracy lacking with Bufalini's map. The Nolli plan is a seminal work providing an intuitive understanding of spatial structures of the city through its rendering: buildings are rendered in dark and voids in white and light shades of grey representing vegetation and paving giving the impression that the voids are carved providing outdoor rooms, and this has influenced many authors' understanding of the city such as Cullen, Gehl, Rowe, Sitte, Krier among others. The interior of public buildings is drawn in detail conveying the patterns within the public realm and relationships between inner and outer spaces and how these are assembled. In this reading, gradations of spaces between public and semi-public or pseudo-public spaces are represented including transitions, thresholds. It depicts spaces in which to stay and move through, conveying a sense of continuity of space. Trancik<sup>96</sup> explains the term *urban poché* associated with the figure-ground map, a simplification of the Nolli map as it only shows in white the mass and in black the voids or vice versa. *Poché* refers to the black figures that define or emerge from the white background or in some cases other figures. He defines the term *urban poché* as "the supportive structure which registers the spatial landscape engaging the buildings with their adjacent voids, making a kind of continuous imprint on the plan".<sup>97</sup> The figure-ground correlates with the *Gestalt*<sup>98</sup> where the figure emerges from or on the ground. There is no figure without ground,<sup>99</sup> and when we perceive we concentrate on the figure. The *Gestalt* reveals something other than just a whole as a sum of its parts; the whole exceeds the sum of its parts. The figure-ground map relates to the figure and ground referred to here and these-in the image- can be reversed revealing alternative and complementary features of the whole. The two figure-grounds of a whole cannot be held simultaneously in our mind.<sup>100</sup> This is wide spread tool deployed by many to expel and disclose intrinsic relationships.

Camillo Sitte<sup>101</sup> was influenced by the Nolli plan<sup>102</sup> and his work is a reaction to the development

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<sup>96</sup> Roger Trancik author of *Finding Lost Space. Theories of Urban Design* (Canada: Wiley, 1986) is an American landscape architect and urban designer.

<sup>97</sup> Ibid., p.99.

<sup>98</sup> The German term *Gestalt* means quality form or structure and it gave name to the Gestalt Psychology group. Its origins are interwoven with phenomenology (Stephan Käufer and Anthony Chemero, *Phenomenology, An Introduction* (Cambridge: Polity Press, 2015), pp.78-9)).

<sup>99</sup> Dermot Moran, *Introduction to Phenomenology* (Abington, Oxon & New York: Routledge, 2000), p.393 on the section of Maurice Merleau-Ponty.

<sup>100</sup> Käufer & Chemero, pp.80-91.

<sup>101</sup> Sitte was an Austrian-German architect and he is considered by many the father of urbanism. Beatriz Colomina in her paper Battle Lines: E.1027 refers to Sitte's comments on planning failing to define boundaries.

<sup>102</sup> This is evident on the way he portrayed the plans of the places he studied and included in his renowned publication *City Planning according to Artistic Principles* published in 1889.

happening in his time and based on an understanding of the urban fabrics that he considered attractive and beautiful. Fundamentally, Sitte is very interested in the duality of urban elements such as buildings, plazas, monuments, street, which are elements in themselves while also parts of the whole. He studied the configuration, order and spatial attributes of these urban spaces and how these are experienced as we approach and/or move through them, drawing out what he labelled as the artistic principles. He visited and drew a large number of parts of old urban fabrics, especially in Italy, using analytical methods such as a variation of the Nolli and figure-ground maps, perspectives and façades though it is surprising that he does not draw sections. Some of the principles he considered relate to the limit as the principle of enclosure of spaces and how these are interrelated.<sup>103</sup> He reflected upon the location of civic buildings, differentiating them in the map by filling them in with black thus making them stand out from the white of the open space and grey of non-civic buildings. He concludes that these should be integrated into the block, albeit enjoying a predominant position, but ensuring that the façades of civic buildings are part of the walls (limit) facing the square. He believed that the walls (façades) form the space and these should be put together relating to the theory of the “picturesque”,<sup>104</sup> obeying compositional principles. He also referred to the size of the open space as this should be defined in accordance to the major building in the space revealing a direct relationship between the width and length of spaces. He also considered the composition of space in accordance with our perception and experience saying that important monuments should be placed at edges producing dramatic environments. Hence, Sitte considered the limit of the space as its generator and, important for its good design, paying attention to what extent this (the wall, the limit) can be manipulated to enrich the users experience.

Cullen and Sitte have a similar way of reasoning, coinciding in their spatial approach, but differing in their phenomenological approach. On the one hand, Cullen advances and clarifies Sitte’s discourse with the introduction of the term kinaesthetic and the analytical method of the serial view where the figure-ground map is complemented by perspectives moving a two-dimensional to a three-dimensional study. On the other hand, the Belgian architect, urban designer, theorist and sculptor Rob Krier, in his book *Urban Space* published in 1979 in memory of Camillo Sitte, defines urban space as “all types of spaces between buildings in towns and

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<sup>103</sup> These are close to the principles of the Gestalt, but these were defined later.

<sup>104</sup> The term "picturesque" first appeared in the 18th century as part of the English empiricism relating to the aesthetics of the landscape where lineality, geometric accuracy and formality were rejected in gardening. This trend moved into urban design and architecture through the hands of Humphrey Repton who worked closely with John Nash. See Raymond Issacs, 'The Urban Picturesque: An Aesthetic Experience of Urban Pedestrian Places', *Journal of Urban Design*, 5/2 (2000), pp.141-180 (p.149-150).

other localities”<sup>105</sup> in line with Ford. Furthermore, he says that these spaces are geometrically bounded by façades. He introduces the notion of carved space also adopted by the sculptor Eduardo Chillida in his unbuilt and very controversial project at Mount Tindaya, Fuerteventura, Spain. This simple definition, just considering the spatial dimension of space, implicitly refers to the limit and is contested by geographers, sociologists, anthropologists, philosophers and the previous author, Sitte. Krier establishes a broad classification of space in relation to its basic geometry and topology correlating it to spaces in which to stay and move through, analogous to the corridor and room in buildings already posed by his predecessor Sitte and others like Gehl. He determines a taxonomy of spaces between buildings based on geometric attributes deploying the figure-ground map as a technique to visualize the spaces, resembling Sitte’s studies but with a different aim. Sections are provided occasionally to overcome the two-dimensional constraint of figure-ground studies. This study is principally based on the figure-ground plan instead of the Nolli plan reducing the limit<sup>106</sup> to a line and what is beyond the line is never referenced. As mentioned previously, the figure-ground presents the dichotomy and inherent interdependence between open and inner space in a blunt manner where one cannot exist without the other, and these are presented as opposites with no dialogue between the two and with no in-between. Thus, the limit is implicit, but this approach can be criticised for disregarding the complex phenomena taking place at that junction that results in a sophisticated and rich limit.

The term “lost space” was introduced by Roger Trancik<sup>107</sup> referring to ill-defined space concerned with the underused and not defined space (without boundaries) that creates negative discontinuities in the urban fabric. These are found in areas in need of development, and applies to small, medium or large size areas. In all cases the discontinuity implies a limit between the lost space and larger context that needs consideration. He defines five causes resulting in lost space and these are still relevant. He does not refer specifically to the limit or boundary, focusing his argument on the problems that ill-defined space brings.

### **The Portal as a Transitional Space and Space for Transformation**

in 1999, White published his paper *‘Path-portal-place. Appreciating Public Space in Urban*

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<sup>105</sup> Krier, p.15.

<sup>106</sup> The encounter of the white and black.

<sup>107</sup> Trancik introduced this concept and causes in *Finding Lost Space. Theories of Urban Design*, pp.3-20 and he proposes three theories of urban design: figure-ground theory, linkage theory and place theory.

*Environments'*,<sup>108</sup> which relates to Cullen's work as he also adopts the kinetic approach, describing people's movements between spaces while referring to our perception and the way this affects our feelings and sensations. He refers to "kind spaces" or "we are transformed into citizens" sensations that we experience in the urban environment when we move between the private and public realm. Although this paper is also close to Krier's work, which sits on the other side of the spectrum in relation to Cullen and Whyte, it somehow takes from both 20 years later. White bases his study on a tripartite classification contrasting with Krier's<sup>109</sup> dual type of spaces from which to elaborate his rich taxonomy.<sup>110</sup> White considers paths, portals and places where paths correlate with streets/corridors and places with squares/rooms of Krier's classification. Even though Krier does not include portals in his classification; he dedicates a section to the "intersections of street and square"<sup>111</sup> and while this is not considered as an element in its own right there is an acknowledgement that something happens when two elements meet. The second commonality is the manner in which both conduct their studies relying on the figure-ground map and occasionally the Nolli plan. The mass is drawn with thick lines and, where appropriate, the mass is filled to perceive the void as the positive element, thus bringing it alive. White defines the portals as points in the urban environments that are about "transition and transformation. Points in paths where we move into and out of plazas, gardens, and courts. Portals are gateways, thresholds, those wonderful places where outside become inside. We are changed when we pass through portals. We are altered by virtue of entering public space, becoming urban citizens at a loftier level and feeling the heightened intensity of a higher belonging (...) culminate rituals of procession".<sup>112</sup> This fragment reveals the correlation of the portal with "liminality" and the adjective liminal –on the threshold- referring to a specific and privileged location but ambiguous condition; neither "here" nor "there" reminding us of Cullen's readings. Liminal refers to the middle stage of ritual passages introduced by the anthropologist van Gennep in the early 1900s and then resurrected by Turner in the 1950s, denoting the middle stage between life stages (between child and adulthood, un married and married...) and later applied to other social-spatial situations. Here, it refers to the part linking locations and conditions, where the part reveals the whole; a journey manifesting the between

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<sup>108</sup> Edward T. White is a Professor of Architecture in Florida, America. This paper was originally published in Architectural Media Ltd, Tallahassee p.57-98 and later published in the *Urban Design Reader* in 2007 by Matthew Carmona and Steve Tiesdell and an extended version was published separately in 2007 by Architectural Media Ltd.

<sup>109</sup> Krier, pp.15-16, established a taxonomy of urban spaces without making value judgements and the aesthetic qualities are featured through the study of variations and combinations of geometric shapes, details and interrelations of the urban elements.

<sup>110</sup> Ibid., pp.16-17.

<sup>111</sup> Ibid., p.28.

<sup>112</sup> White, pp.67-68.

(or moving through) a path and a plaza. White does not consider the portal between a path and another path or a plaza to another plaza but the portal as a nexus which has physical presence and qualities. The portal is an in-between in its own right, able to orchestrate “the unfoldment of our view (...), point of orientation and collect ourselves getting our bearings”.<sup>113</sup> He considers them as thresholds, “they (portals) are the doorways that draw us along paths, as visible invitations, apertures that frame our view”<sup>114</sup> the point of entry and not the exit point providing possibilities, options and invitations. On the contrary, Krier does not give this status to the intersections as he assesses them from a formal and functional view point.

White analyses the portals under four headings that are also applied to the paths and places: “Container” presents the morphology and formal elements, “activity” refers to the functionality and some reference is made to activities, ambiance relating to the atmosphere in a similar way to that used by Peter Zumthor,<sup>115</sup> “historical significance” refers to the historic value and “good” correlates with the conclusions drawn from the previous headings. Under the section of “container”, White refers to plans, sections and freehand perspectives as analytical drawing tools and these are in line with the methods applied by Krier. It is surprising that he does not justify the four headings that structures his explanations and no overall conclusion is provided. White refers to the boundary when reviewing and presenting the path, portal and place that correlates with the façade and considers its formal characteristics that will determine our experience and perception but without engaging in its possibility or potential as did Jane Jacobs.

### **Urbanity Defined by the Interfaces**

In 2004, Miloš Bobić<sup>116</sup> published his book *Between the Edges. Street-building Transition as Urbanity Interface*, in which he studies the relevance of interfaces resulting from a negotiated boundary where the private meets the public, the inside meets the outside and the individual meets the common culture. Both, the individual and the common culture, change but the latter is defined by the community which lasts longer. His study specifically focuses on housing, where the domestic domain meets the street/public domain. His study emerges from questioning the

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<sup>113</sup> Ibid., p.68.

<sup>114</sup> Ibid., p.68.

<sup>115</sup> Peter Zumthor, in *Atmospheres* (Basel, Switzerland: Birkhauser, 2003), relates the atmosphere to the quality of architecture and this to what manages to move us. He compares it to our first impression of a person; to the feelings this triggers on us. He says that “we perceive atmosphere through our emotional sensibility – a form of perception that works incredibly quickly, and which we humans evidently need to help us survive”, pp.11-13.

<sup>116</sup> Bobić was a Serbian architect-urban planner and academic who worked in the Netherlands.

ambiguous and complex concept of urbanity<sup>117</sup> that manifests in urban areas. He reaches the conclusion that interfaces<sup>118</sup> play an essential role on defining urbanity and interfaces can be conditioned but not designed.<sup>119</sup> He argues that there is no universal definition for urbanity as it depends on many localised factors and it is phenomenological in nature. “Urbanity appears from complex relationships between economic potentials, juridical regulations, norms, social structure, cultural milieu and traditions, religion, geographical location and climate, spatial patterns and architecture of the city”.<sup>120</sup> There are different types of urbanity and a city includes a variety of them associated with locations, own identities, specific spatial qualities and characteristics based on its “history, particular social structure and cultural configuration and potential”.<sup>121</sup> Urbanity changes continually<sup>122</sup> through time and space which are intrinsic to each other, leading him to the idea of genesis and transformation. Thus, it comprises a process of transformation where individuals and people express their ideas and wills affecting, defining and re-defining the “behavioural code in the community”,<sup>123</sup> determining changes or just adjustments and negotiations, reaching transitory balances among people and environment. Any transformations may be measured as improvements in relation to inhabitants’ needs and desires instead of professionals’ principles. Urbanity can neither be designed nor planned as too many factors are involved and it is down to inhabitants exercising their freedom and to the resultant multi-scalar interrelations within an existing framework. Subsequently, the ideal framework proposed by urban planning and design should be mediated by the reality of spatial politics. Bobić advocates a morphogenetic process including the genesis of a spatial morphology containing a spatial framework as well as socio-political structures that allow growth. Thus, initial spatial patterns (framework), including inherent sets of rules, degrees of flexibility and so on, continually adjust through time by the socio-politics of space and this provides a higher meaning to the different elements determining the urbanity of a place. He concludes that the edge is

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<sup>117</sup> *The Dictionary of Urbanism* provides three exceptions for the definition of urbanity which are general. The fourth exception refers to “urbanism” expanding the term even further. The three definitions are: “1. The quality of being well-mannered; 2. The condition of life in a city (...); 3. The positive qualities of the social and collective life of cities; a quality of vitality and diversity possessed by successful towns and cities, resulting from a wide range of people coming together in the same place for different purposes (...); 4. A type of urbanism.” See more in Robert Cowan, *The Dictionary of Urbanism* (Tisbury, Wiltshire: Streetwise Press Limited, 2005), p.432.

<sup>118</sup> An interface takes place between, at least, two things implying a boundary, a line to be crossed. Due to relationships between them the line is contested from both sides creating an interface.

<sup>119</sup> Bobić, p.79.

<sup>120</sup> Ibid., p.37. Bobić’s definition of urbanity is based on relationships making it very dynamic and “spatial patterns and architecture” are just two of the many factors contrasting with the definitions provided in *The Dictionary of Urbanism*.

<sup>121</sup> Ibid., p.38.

<sup>122</sup> The adjective continual is relevant as it refers to the type of change that it is defined by external factors. Genesis determines the change and its extend becoming a relevant term for Bobić.

<sup>123</sup> Ibid., p.39.

the right place to act and he claims that “a proper balance between private and public must be initialised through the careful conceptualisation of a specific spatio-regulatory framework of their edges”.<sup>124</sup>

His existential space theory study of the interface finds out that our experience and perception is affected by diverse aspects: from the width, height and alignment of buildings’ facades composing the block, the overall width of the street and its parts, land uses, to the relationships, confrontations and negotiations due to economic, social, cultural and scalar differences. He concludes by defining the interface as “a surface serving as the common boundary of two bodies or spaces, but also as common boundary or interconnection between systems, equipment or human beings. It is essentially a space, or field of transition wherein the processes of interrelations occur”<sup>125</sup> and he promotes a well-planned and well-designed in-between resulting in spatial and street identity where inhabitants can act on them.

He adopts “typomorphology”<sup>126</sup> as the way forward to study further the interface encompassing the agents of genesis and transformation. Bobić believes a type is able to identify codes of specific elements providing a direction and framework but no specific rules or solutions as the type accepts variations and adapts. He explores individual and collective interfaces,<sup>127</sup> acknowledging that material and immaterial elements<sup>128</sup> determine our experience of the interfaces. In the interfaces, the sensations of material and immaterial elements are manifested and experienced in different measure and in endless combinations, resulting in infinite cases proving it difficult to define the typology and types. Bobić identifies five agents that define the

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<sup>124</sup> Ibid., p.46.

<sup>125</sup> Ibid., p.66.

<sup>126</sup> Typo-morphology combines typological and morphological studies with special attention to the changes over time. Typology is the classification of the forms that are characteristic of buildings. Morphology refers to the study of urban structures, patterns, form of human settlements and processes. Typomorphology emerged in the 1960s but Anne Vernez Moudon coined it in 1994.

<sup>127</sup> Individual interfaces refer to interfaces to individual dwellings where the unit as part of a block where the domestic domain meets the public space with its own regulations and spatial configuration. It is the place where urban and architectural “levels of scale” meet, intersect or are juxtaposed. Collective interface refers to the mews, alley, arcade colonnade, gallery, courtyard considered as subtle subdivisions between the dwelling unit, group of dwellings and the city. These spaces physical and psychologically protect the community while offering an intimate space for community specific rules and rituals can be developed.

<sup>128</sup> The immaterial elements refer to the shadows, light, smells, reflections, security cameras and others. The material elements correlate with the spatial configurations attached to the building which include a combination of elements correlating with functional, spatial and formal aspects. These are defined by spaces/zones defined by materials, change of level, canopies to name some and includes territorial conditions and personalisation.

morphology and character of the interface: 1) plotting out principle, referring to the qualities of the plot that define the position of the buildings in the block, between them and in relation to the public space; 2) width of the façade (physical and visual length of contact with street); 3) street type (profile and content); 4) Position of building in the plot; 5) inner structure of building on plot with different size and depth of front gardens.<sup>129</sup>

In relation to the type he points out that current typological studies focus on the type of open space or the block based on ownership, formal configurations and functional requirements but the edge or the result of their particular relationship and interrelation is not studied.<sup>130</sup> Although the interface has a spatial configuration that evolves through time with an agent of morphogenesis. It is the product of a dynamic, dualistic and complex relationship between the building and the street. The criteria of the “typologisation” for the street, public and private and building are contradictory due to opposite interests. The interface is where the individual meets the common culture, wherein “the social relationship between the public, collective and private”<sup>131</sup> evolves and is negotiated. It is where the building meets the street that different agents are manifested: material and immaterial factors, juridical, behavioural and cultural and also characteristics of volume, meaning, content and use, materials, temporality or permanency and transparency or opacity. The size of the spatial and visual depths in relation to territorialities is important and also the understanding of the intrinsic relations between levels of scales referring to the transition and interrelations of scales. The study of the interface requires studying the two directions as Habraken (1986) already pointed out and as Jacobs, Alexander, White and Sennett considered in their idea of the membrane.

The typologies of the interface presented in the final chapter are grouped under seven types<sup>132</sup> based on the spatial configuration resulting from the junction of the building and the street. No analytical diagrams are provided and in most cases the picture has been manipulated to isolate the element to be studied. The book ends with a simplistic presentation of the types and a taste for variations where there is neither evidence nor exploration about how all the complexity of the interface is portrayed. This last chapter in terms of content does not correlate with the previous chapters, but we can discern a methodology or design research as to how the author has approached the general study whereby the methodology in relation to the study of the

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<sup>129</sup> Ibid., p.81.

<sup>130</sup> Ibid., p.82.

<sup>131</sup> Ibid., p.84.

<sup>132</sup> These are integrated, overlapped, confronted, associated, inserted, extended and suspended and under these types between three to seven subtypes are presented with a picture and a short description normally highlighting an aspect.



types is too simplistic, even banal, where the previous sections and way of thinking had little consequence.

The interface is a type of limit basic to urbanity and belongs to architecture and urban design. It is an entity in itself, which includes many variations, as part of a bigger whole. It is changed and changes over time as this manages tensions. It absorbs and records them and we can rediscover the previous spatial forms through typomorphological studies, disclosing individual cultural habits and values.

## Summary

The texts referred to above indicate how the limit has presence in our lived-experiences of the built environment. The paramount and obvious example of the limit- the façade- figures in many authors' work and is defined by the line where the public meets the private or the inside meets the outside. Nonetheless, the overview of authors reveals a rich spectrum of approaches. On the one hand, the limit for Whyte, Cullen, Cooper Marcus and Francis, Nolli, Sitte and Trancik is merely implied in their discourse. Whereas, on the other hand, in the work of Gehl, Jacobs, Stevens, Lynch, Alexander, Ford, Krier, White, Habraken and Bobić, the limit is articulated as a specific aspect defining the experience and performance of the built environment.

Despite Whyte not naming the edge, boundary or border, he dwells on the triangulation that may occur along the façade or a low wall that differentiates spaces as well as serving as a sitting area from which to watch. Cullen, with his existential spatial approach, describes the environment deploying the here/there and this/that with an implicit limit between each pair of adverbs and pronouns respectively. Cooper Marcus and Francis refer to the limit that frames, acts as a membrane, is an edge, a transition or barrier. Sitte and Trancik do not discuss the limit per se, although the figure-ground map presents the limit in a simplistic way but this is crucial as it defines the double limit where the white and black begin and end, one defining the other. The figure-ground is a simplification of the Nolli plan, which conveys the limit in a complex way aligned with the discourse of continuity of space central to the modern period.

Within this myriad of thinkers, some like Gehl, Alexander and Bobić go as far as saying that the limit has a direct relationship with how the centre performs. Gehl and Alexander refer to the edge of the space, which in many cases coincides with the façade while in others is something much subtler and more complex where the line has become a zone with depth,

spatial configuration and able to be inhabited. Jacobs specifically defines this zone providing measurements and describing the dynamics in a specific case and she also precisely refers to the importance of border along the perimeter of parks. Stevens demonstrates how the edge is instrumental in how activities develop and appropriate the city contributing to the degree of urbanity. Lynch defines the edge as one of his five elements that characterise the built environment applying it to different scales; between districts or the edge along the path. Ford and Bobić, despite their different focus and motivations, both explain the changes of meanings of “in-betweens” based on mutations of function and therefore of spatial configuration in many cases related to technological advances or diverse notions of public and private. While Krier conceives the intersections as the point where two things join as such as two streets or a street and a *plaza* creating a third-the between. White introduces the portal as one of the three elements that makes the spaces between buildings. He considers this in a similar way as the interactions for Krier, but he reflects upon them as a main element that we experience in the built environment relating to the idea of the threshold; an in-between, an interface where the person becomes a citizen. Bobić presents an intelligent and sophisticated study of the interface between the domestic and public domain, between the house and the street. He poses a complex and sound discourse reaching a definition of the interface or transition including the agents and characteristics. His study is valuable, and it will be interesting to explore how this translates when applied to the different nature of interface conditions that this research studies.

*Boundary, bound, edge, threshold, portal, transition, and interface* are terms with slightly different meanings but with similar connotations. Definitions are provided for the more concrete terms relating to physical conditions, such as the portal and the threshold. In this case, authors have the urge to approach the conceptualization and philosophical root of the word aiming for guidance and clarity. Thereafter, for Bobić, “transition and interface” are two interchangeable terms and he has provided a complex definition of the phenomenon for a specific type. De Jonge, referenced by several thinkers, deployed the term “edge effect” referring to how people locate themselves in space in relation to the limit, and if this does not exist or is not clear, then the people themselves will define it. On the beach where the limit can be far and difficult for individuals or groups to directly relate to, it is a common practice to mark<sup>133</sup> the territorial limit where inhabitation and activities evolve. Therefore, based on this understanding, some authors adopt the term “edge” but they do not examine its origin. Other authors adopt “boundary” and its derivate “bound” that the former acts as a noun and the latter as an adjective or verb implying that “this is made” and it may “fluctuate” or “be modified”; it can be permanent,

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<sup>133</sup> Mark the limit defining their territory (their figure in the immense ground) placing windbreaks, parasols, or even just towels and bags.

temporal or can evolve. For example, Alexander deploys the “edge” and “boundary” for different situations entailing different characteristics.

Hence, there is a broad approach to the adoption of the terminology related to the limit. Nonetheless, there is some direction in the complex characteristics and variations in which the limit is presented and experienced. It seems that just a sophisticated approach considering varied layers of knowledge will be valid.

Each author has a way of working and reaching conclusions though it is challenging to identify sound methodologies to be adopted in a study of the limit. Some authors base their studies on observations. Gehl and Whyte observe a number of spaces following clear protocols and analyse and compare outcomes to draw conclusions. Others like Jacobs or Stevens also observe and record them but as individual cases. Cullen narrates his experiences based within a theoretical framework. Others, like Lynch and Alexander, base their studies on peoples’ reflections plus their analytical skills. Lynch works with students and lay people, asking for a mental map to identify the traits that define their experience and understanding. Another group of thinkers base their knowledge on morphological explorations that usually include historical studies. The Nolli and figure-ground map are tools with a great potential to start the study of the limit as well as other techniques that are deployed by morphologists but not applied by the authors assessed here. The final group is configured of authors who mix methods like White and Bobić.

Many authors demonstrate that the limit is significant in defining our experiences and the built environment. The limit is physical and physiological. It is an entity with dimensions; it is more than a line even though in many cases this is difficult to measure, and thus it can be inhabited. It occupies a privileged location, able to separate as well as to establish relationships (like the façade or the interfaces); able to attract or repel and cope with tensions. Some believe that it is able to harmonise tensions, it can be selective and asymmetric. Through time it transforms in order to adapt but it is also able to provoke change. It is clear that the authors reviewed attempted to capture the idea of the limit, as experienced, in their works.

These thinkers raise key issues about the articulation of the idea of the limit, and how it operates. The ideas outlined by these theorists and the related but disconnected vocabularies they present, are never tested against real-world experiences of the limit. The next chapter, 1.2, will be devoted to accounts of my experiences of particular limits of the urban and the landscape cases studies. Through the descriptions, I will reflect upon the issues introduced in this chapter. These will set up the basis of chapter 1.3, which seeks to ‘define and redefine

the limit' engaging my real-world experiences with philosophical, anthropological and socio-political literature. This culminates with chapter 1.4, where a working definition of the limit in architecture and urban design will be proposed.



## 1.2 Experiencing the Limit

This chapter explores, from a phenomenological stance, the spatial-temporal experiences of walking through urban and landscape spaces between destinations or just meandering between locations and inhabiting them, in relation to individual perception of a place. It seeks to express the complexity of the notion of the limit as urban design thinkers articulate it and the limit is understood through its experience, influencing our everyday perception.

Hence, the limit is explored through spatio-temporal discursive descriptions based on the lived-experience of three walks through three case studies: the two urban case studies located in the city of Barcelona, and the one landscape case study located on the coast of Mallorca, as already outlined in the introduction. The discursive descriptions are influenced by my knowledge in urban design, characterised by my architectural background determining what I see and the way I see it, whilst enabling relationships to be established between the discourses of the urban design thinkers presented and the lived-experiences. The urban case studies are presented first as they correlate with the place of research of the urban designers, the urban environment.

### Description as Phenomenological Method

The descriptions provided here have a resemblance to the ones presented by Edward S. Casey in his recent book *The World on the Edge*.<sup>1</sup> He calls them “peri-phenomenology” which are descriptions based on his experience at-hand (available to him in Heidegger’s mode) without providing any other complementary material such as pictures. The descriptions are comprehensive, because the exercise of narrating the experience of moving through spaces analysing the way we see, feel and interrelate with things and/or understand them is, by necessity, detailed. The descriptions surface from the lived-experience and focus on spatial and visual aspects, yet these encapsulate feelings and trigger the senses in the writer and reader. This exercise places demands on the writing of experience, entailing a process with careful descriptions. These cover diverse elements and scales to identify aspects, rhythms and

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<sup>1</sup> Edward S. Casey, *The World on the Edge* (Bloomington, Indiana: Indiana University Press, 2017). See p.xix for etymology of the word and pp.53, 54, 300.

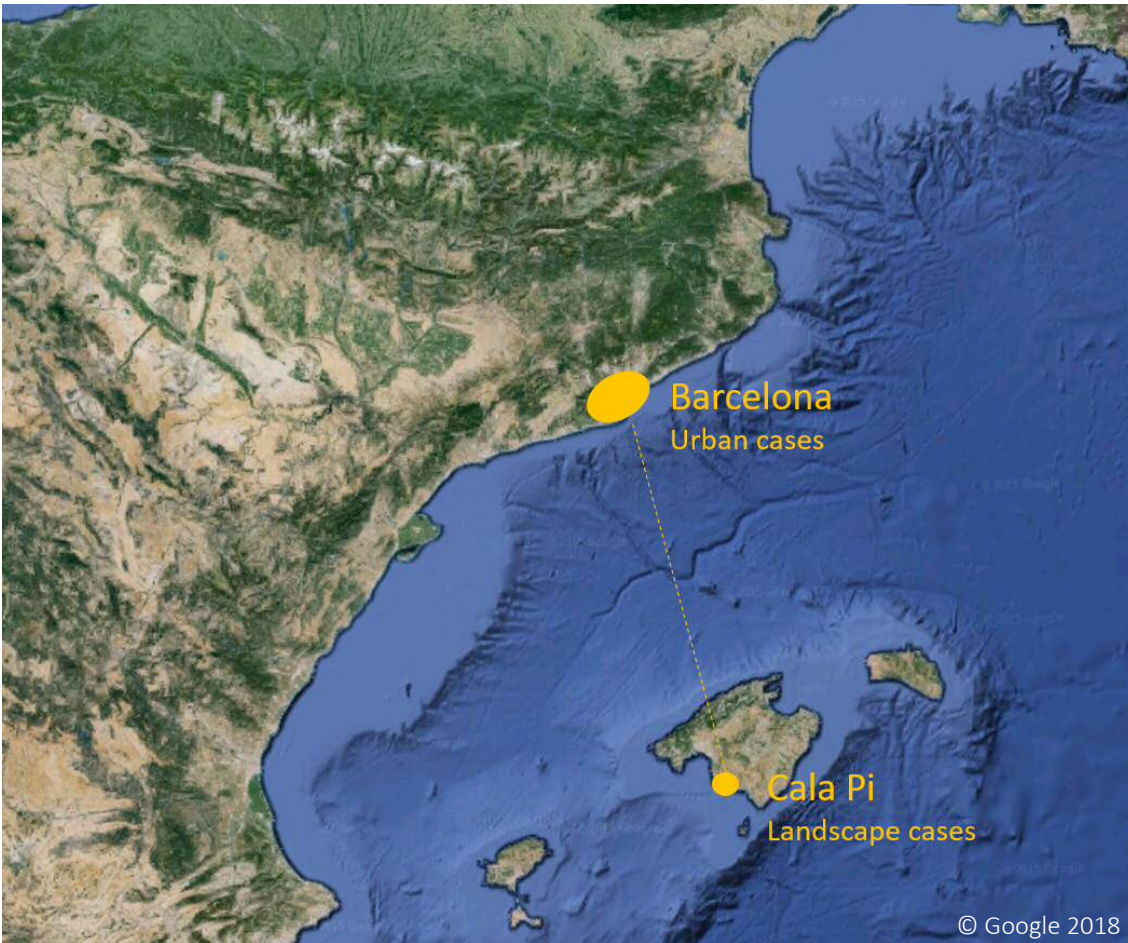


Fig 1.2.1  
Case study locations.



Fig. 1.2.2  
Barcelona case study locations.

patterns that may be formalised but, a priori, they appear invisible to us. The descriptions are based on my personal experience (lived-experiences), yet are informed and influenced by my understanding of the limit in urban design presented in the previous chapter.

These are explained in third person and use a female voice. My researcher's approach is arguably distinctive to that of the tourist, who has a different mind-set and looks for serendipity, the extraordinary and unique attributes of places. Or in opposition to the residents, who experience these spaces regularly and understand them more habitually. Thus, these are affected and shaped by my professional background explained above and the aim of this exercise.

### **Photography as Phenomenological Method**

The descriptions are supported with photographs. As researcher, I have taken photographs and occasionally supplemented them with maps available to the public. These will enable the reader to engage and position themselves within the location of the descriptions and relate to them in a more vivid way. Photographs are not substitutes for the descriptions but complementary. Cameras are excellent tools for recording places, allowing the photographer to zoom in and out at will, using the macro or wide angle to take a general view or focus on a part of a view, element and so on. Each zoom is a separate shot, but is also part of a sequence. Each individual shot can be considered to recreate time, rhythms, screen out or obscure elements in order to simulate the experience/s. The stimuli of sound, smell and touch are embedded in the experiences of a place and these are aroused through the imagery produced by the camera, evoking the memories of the viewer that correlate with collective memories. However, the camera is not a substitute for the human eye, which operates in a far more complex way; astute and quick, overlapping and juxtaposing elements within a view and between views and these in conjunction with the rest of the sensory apparatus as part of a complex system. It is acknowledged that the camera represents what we see but in a distorted way compared to the way we see.<sup>2</sup> However, it is a suitable tool providing another mode to attain the things at-hand with its own limitations.

The photographs presented as complementary to the descriptions have been taken on different visits to the different case studies and the camera was used as I used my eye. The eye is

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<sup>2</sup> See the study and recording by Peter Bosselmann, *Representation of Places: Reality and Realism in the City Design* (Berkeley, London: University of California Press, Ltd, 1998), pp.2-9 where he explains two views of the world to show the discrepancy between both; photograph versus eye view.



selective. In this case, the photographs in this study were taken in relation to and determined by this particular enquiry and my background. The camera- operated by me- is selective as I am aware that a photograph based on its framing can reveal in a similar way to the framing of a drawing. The selection of the photographs is based on the descriptions, but the photographs have also informed the reflections as a record of the lived-experience.

### **The Limit in Urban Design Informing the Descriptions**

The descriptions seek to express the complex notion of the limit as articulated by urban design thinkers based on the experience of the limit. Hence, they focus on my experience of the limit and through the footnotes these are linked to the ideas of the urban design thinkers. There are reflections upon the limit performing as a membrane with differential flows between the two directions of the limit.<sup>3</sup> The “here” and “there” of Cullen is experienced revealing the limits within the view and an effort has been made to identify the possible link between these and the grounds of a view.<sup>4</sup>

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<sup>3</sup> Jan Gehl, Christopher Alexander et al. and Quentin Stevens use the term membrane and Kevin Lynch mentions the possible variation along the length of the edge. This variation may lead to different widths and qualities along the edge and at each side of it.

<sup>4</sup> Gordon Cullen’s kinetic approach to the experience of the urban realm takes him to the sequence of spaces and its inherent “here” and “there”. In the previous section, I mentioned the relation with the foreground, middle ground and distant ground and their importance for the architect pointed by Steven Holl, Alberto Gómez-Pérez and Juhani Pallasmaa.

### 1.2.1 In Architecture and Urban Design

The two case studies located in the city of Barcelona are presented in this section and were selected because they provide a wide range of limits in different urban conditions. Since the middle of the 1970s, after the era of Franco, Barcelona has worked diligently in a creative and unique way to make city spaces, devoting special care and attention to the public realm. Politicians,<sup>5</sup> professionals<sup>6</sup> and citizens have worked together to develop the common vision and values of the city and especially the public realm. Residents, visitors, academics and professionals<sup>7</sup> of the built environment acknowledge and appreciate the richness and quality of the *Barcelonis* urban fabric and its public realm.

The case study *Jardins de Lina Òdena* is presented first as it includes the everyday related to the street and compact public spaces associated with residential areas and the domestic domain. *L'illa Diagonal* follows, this relates to the residential but covers a wider range of domains and scales including the city-scale.

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<sup>5</sup> Josep Maria Sociás Humbert (1976-1979), Narcís Serra Serra (1979-1982), Pasqual Maragall Mira (1982-1997), Joan Clos Matheu (1997-2006), Jordi Hereu Boher (2006-2011), Xavier Trías Vidal de Llobatera (2011-2015) and Ada Colau Ballano (2015-present) are the mayors of the city of Barcelona since the democracy was restored in Spain in 1975. Serra Serra is the mayor who supported the implementation and regeneration of open spaces and interventions at the small and middle scale as well as originating the proposal for the Olympic Games 1992. Maragall Mira is the mayor who won the bid for the Olympic Games and delivered the projects to make it possible. He supported large and middle infrastructural scale projects across the city. Clos Matheu is known by the intervention of Forum Universal de les Cultures, to end the unfinished Avinguda Diagonal, regeneration and redevelopment of the river Besòs, Diagonal Mar and the conception of the project @22 based in Poblenou.

<sup>6</sup> Josep Lluís Sert López (1902-1983), Oriol Bohigas Guardiola (1925- ), Manuel de Solà-Morales Rubio (1939-2012), Joan Antoni Solans Hugué (1941- ), Joan Busquest Grau (1946- ), Eduard Bru Bistuer (1950- ) are a few influential names of Catalan architects and urban planners who actively contributed to the development of the city and the ethos of its planning.

<sup>7</sup> Bosselmann; Tim Marshall, ed., *Transforming Barcelona* (London: Routledge, 2004), p.1; Allan B. Jacobs, Elizabeth Macdonald and Yodan Rofé, *The Boulevard Book: History, Evolution, Design of Multiway Boulevards* (Cambridge, Mass: The MIT Press, 2002), to name a few.



Fig. 1.2.3  
Barcelona and surroundings circa 1850.

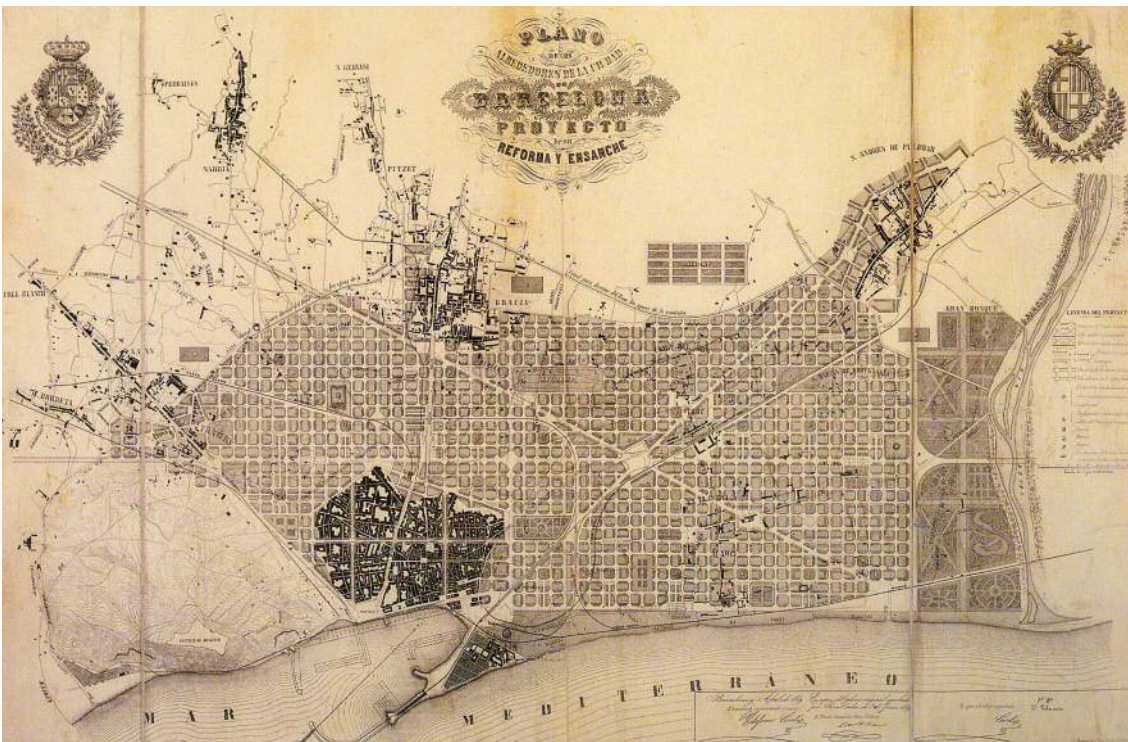


Fig. 1.2.4  
Cerdà Masterplan 1861.

## The Block Cerdà: *Jardins de Lina Òdena*

### Historical Context

Nowadays, Barcelona is defined as a dense, compact city with a robust urban fabric supported by rich architecture and public realm that offer good quality of life for both residents and visitors. A great part of this success is attributable to the consistent work carried out by the local authority working under the clear leadership of a number of politicians from 1979 to 2006, supported by a generation of exceptional and highly competent professionals. Both politicians and professionals valued the public realm and saw this as an indicator of the city's success and a reflection of its society.<sup>8</sup> Above all, part of the success that Barcelona is today is due to Ildefons Cerdà (1815-1876), the Catalan engineer, politician, urbanist and social theorist<sup>9</sup> who planned the expansion of Barcelona known as the *Eixample*. His masterplan was accepted by the central government in the early 1860s and was implemented in the subsequent decades with great input from the private sector.<sup>10</sup> Cerdà proposed a city with medium densities and generous open spaces, following a number of the trends prevalent at that time.<sup>11</sup> The new proposal was in stark contrast to the old city, constrained as it was by its defensive wall and characterised by overcrowding, very poor building conditions with little or no access to daylight, ventilation or proper service as well as poor quality of public realm.<sup>12</sup>

Nonetheless, Cerdà's masterplan differs greatly from its implementation mainly due to two reasons: firstly, delays from the Madrid central government in approving the ordinances<sup>13</sup>

<sup>8</sup> Jordi Borja, Zaida Muxi, *El Espacio Público: Ciudad y Ciudadanía* (Barcelona: Electa, 2003), p.14. Manuel Castell in the preface of Jordi Borja's book *Luces y Sombras del Urbanismo de Barcelona* 2nd edn. (Barcelona: Editorial Universitat Oberta de Catalunya, UOC, 2010), p.10.

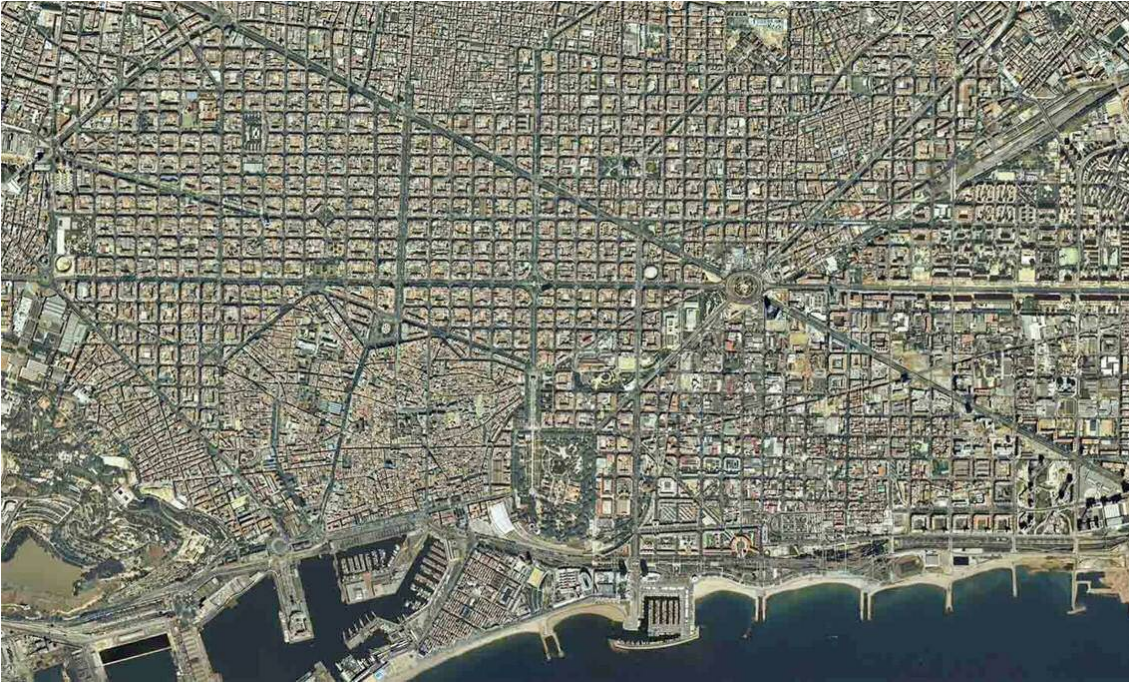
<sup>9</sup> Tarragó, Salvador, Francesc Magrinyà, *Cerdà, Urbs i Territori: Planning beyond the Urban* (catalogue of the exposition, Barcelona: Fundació Catalana per la Recerca and Madrid: Electa, 1996), p.37. This is the book published alongside the exhibition to celebrate the 120th anniversary of the death of Ildefonso Cerdà.

<sup>10</sup> Miquel Corominas Ayala, *Los Orígenes del Ensanche de Barcelona. Suelo, Técnica e Iniciativa* (Barcelona: Ediciones de la Universitat Politècnica de Catalunya, 2002), pp.167-178.

<sup>11</sup> He was greatly influenced by the work of Georges-Eugène Haussmann (1809-1891) who directed the redevelopment of Paris (1850s-1870) and he re-drew the grids of different cities like Boston, Philadelphia, Copenhagen, Turin, Buenos Aires to name a few. See Arturo Soria y Puig, *Cerdà. Las Cinco Bases de la Teoría General de la Urbanización* (Barcelona: Fundació Catalana per a la Recerca and Madrid: Sociedad Editorial Electa España, 1999), pp.123-128.

<sup>12</sup> Lluís Permanyer in the preface of the book by Floro Azqueta, Jesús Portevella J., *Els Interiors d'Illa de l'Eixample. El Significat dels Seus Noms* (Barcelona: Lunwerg Editores and Proeixample SA, 2007), p.8; Manuel de Solà-Morales (2010).

<sup>13</sup> Ordinances are the rules associated to plots correlating to policies in the British planning system and, in this case to regulations in design codes.



*Fig. 1.2.5*  
Aerial view of Barcelona.



*Fig. 1.2.6*  
Aerial view of Barcelona.

associated with the masterplan.<sup>14</sup> This permitted the private sector to build considerably higher densities than the ones proposed in the masterplan; from 16 metre-deep buildings to 24 metres plus the ground floor, or more. Secondly, the approved masterplan included an imbalance between void and mass from an economic view point, making it unviable.<sup>15</sup> Thus, Cerdà's dream was never fully realised, but it is recognised that one of its particularities is the block. Barcelona ended up with an *Eixample* that is relatively dense at 230 dw/ha,<sup>16</sup> mainly composed of consistent perimeter blocks with restricted open space. In 1987, in order to compensate for this imbalance,<sup>17</sup> the first interior of a block- *Jardins de la Torre de les Aigües*<sup>18</sup>- was recovered and opened up to the public. This was part of an ambitious and challenging programme set up to provide all residents with access to a public space no further than 200 meters from their dwellings.<sup>19</sup> Between 1987 and 2015, 46 block interiors were recovered, which achieved access to public space for all residents no further than 300 meters from their dwellings.<sup>20</sup> The introduction of these spaces as part of the block juxtaposes a new public open space alongside the existing ones and new relations between different domains emerge.

This case study seeks to explore the limits and relationships that are established when different domains are juxtaposed: public-private and collective/communal-domestic. The first section briefly presents the block designed by Cerdà and some of its variations with the interpretation

<sup>14</sup> Joan Busquets Grau, *Barcelona, The Urban Evolution of a Compact City* (Italy: Nicolodi, 2005), p.297. It is worth noting that at that time the powers were centralised in Madrid. This contrasts with today's situation where a significant part of the planning powers are decentralised, sitting with the regional governments of the comunidades autónomas.

<sup>15</sup> Busquets, pp.297-303; Corominas Ayala, pp.120-146.

<sup>16</sup> This compares with Brooklyn, New York with 482dw/ha, 17<sup>th</sup> Arrondissement, Plaine Monceau, Courtyard Housing, Block 4001 at 194dw/ha and contrasts with the theoretical block of the Garden City planned by Howard of just 15dw/ha. Data taken from Lee Turney, Imai Randall, Catherine Duffy, et al. *DENSITY atlas* (Massachusetts: MIT, 2011) <<http://densityatlas.org/>> [Accessed 21 April 2018].

<sup>17</sup> The Barcelona masterplan proposed by Cerdà was very generous in open space as part of the block and ended up with a dense grid constituted of blocks with little open space on the ground floor for leisure. Nowadays the claim for more open green space is mainly part of the sustainability agenda but for very similar benefits to the ones Cerdà pursued; health (ventilation, light, social contact) and better quality of life (social contact, contact with nature, mobility).

<sup>18</sup> Most of these recovered spaces include the term "*jardins*" as part of their name, which translates as "gardens" evoking a confined, breathing, quiet space defined by its green, rich palette of material where sun is provided in winter and shade in summer. These aspire to contrast the harsh and busy street colonised by cars, motorbikes and busy pedestrians including trees as the only green element. They seek to improve the quality of life while taking advantage of the dense city; Lluís Permanyer in Azqueta Floro, Jesús Portevella, p.9 and *Ibid.*, p.162.

<sup>19</sup> *Ibid.*, p.158 and Joan Busquets Grau and Miquel Corominas Ayala, eds., *Cerdà i la Barcelona del Futur. Realitat Versus Projecte* (Barcelona: Diputació de Barcelona and Centre de Cultura Contemporànea de Barcelona, 2009).

<sup>20</sup> P.R. *Barcelona crea nous espais verds i esbarjo als interiors d'illa del districte de l'Eixample* (Barcelona creates new green opens spaces in the blocks of the district l'Eixample), 20 Minutes published on the 25.07.2014, <<https://www.20minutos.es/noticia/2199905/0/crearan/interiors-illa/eixample/>> [Accessed 21 April 2018].

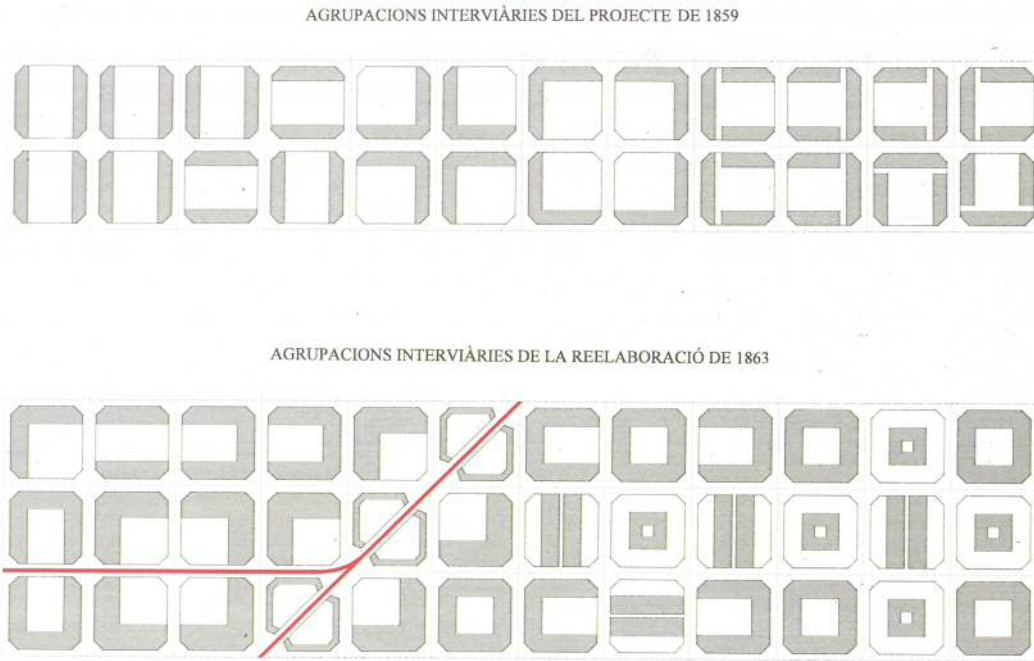


Fig. 1.2.7  
Street-block configurations.

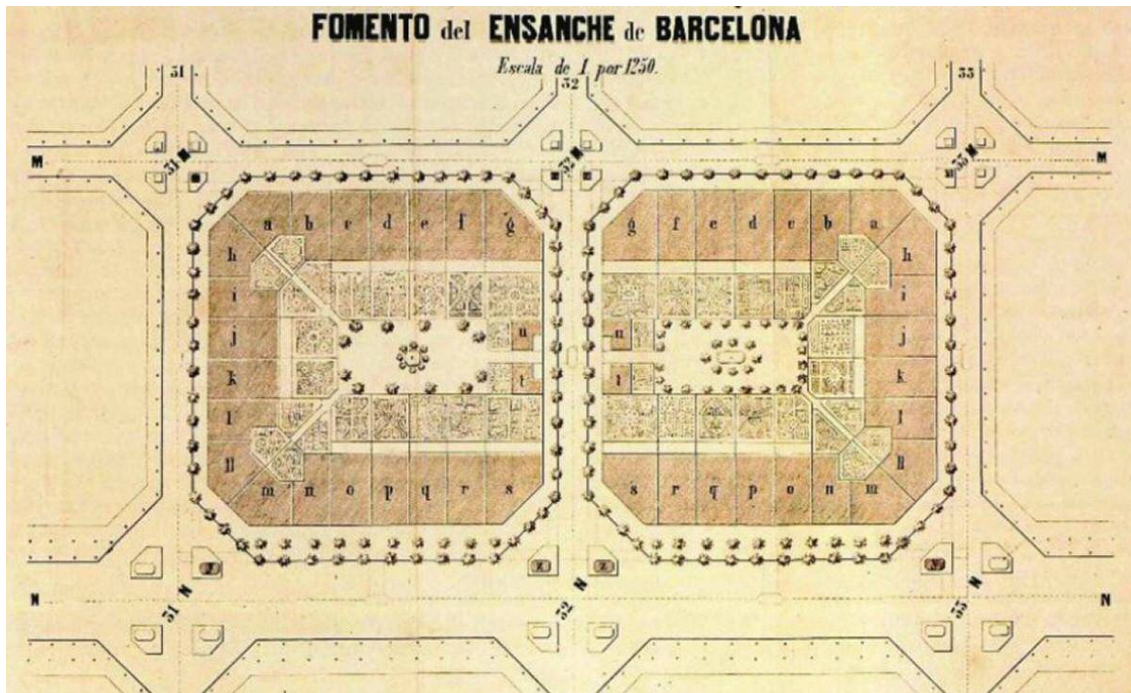


Fig. 1.2.8  
"U-block" special study by Cerdà.

of its associated limits based on the reading of well-known maps and research of Cerdà's masterplan. The second section explores how the recovered public space in the interior of the block for the residents establishes relationships based on the modification of gradations and overlaps of public-private, domestic-collective, challenging the transitions and perhaps redefining the notion of the limit between public and residential realms.

### **Cerdà's Street-Block**

For Cerdà, the street-block was the smallest entity needed to make the city,<sup>21</sup> therefore he paid special attention to it and this entity evolved continuously from the first proposal until the masterplan was approved and implemented. In his initial plan, dated 1859, Cerdà proposed open blocks as the main type with two buildings at opposite sides (and occasionally three buildings with an open side), formalised with 45-degree angled chamfers defining the street corner to reinforce the principle of mobility prevalent at the time, but mainly to accommodate public transport.<sup>22</sup> The buildings define a generous amount of open space, in some cases 48% of the block's footprint.<sup>23</sup> This was originally intended to be a combination of private and communal gardens and allotments to preserve the "home" from the city and guarantee good lighting, ventilation and lifestyle in contrast to the conditions in the old walled city.<sup>24</sup> The buildings are the elements that define the street and the internal open space of the block. Thus, the building is the inhabited limit, which articulates the street and internal open space. The value of the block lies in the buildings- the mass- in opposition to the internal open space and the public open space between blocks- the voids. Cerdà combines this block type deploying many different orientations, resulting in streets composed of different fragments and the correlation of different open spaces forming bigger open spaces.<sup>25</sup> In the 1859 masterplan, he also proposes variations on the configurations of the block where two consecutive sides are constructed formalising the corner and this forms part of the superblock made up of four blocks.

The masterplan dated 1863 proposed that the superblocks<sup>26</sup> mentioned above are mainly used where the grid is crossed by railways whereas the U-block is used as the basic typology. The U-blocks are paired to form a superblock with a large open space crossed by a street.<sup>27</sup> This is

<sup>21</sup> Soria y Puig, p.33.

<sup>22</sup> Ibid., p.280.

<sup>23</sup> And 28% of area to be built and 30% dedicated to the street. Ibid., p.281.

<sup>24</sup> Ibid., p.281 and Permanyer in Azqueta et al. p.8.

<sup>25</sup> A detail study of the combinations of this basic block is provided in Soria y Puig, pp.282-283.

<sup>26</sup> Detailed study is presented in Ibid., pp.335-343.

<sup>27</sup> This was a little but beautiful study he conducted for the *Fomento del Ensanche de Barcelona* and the



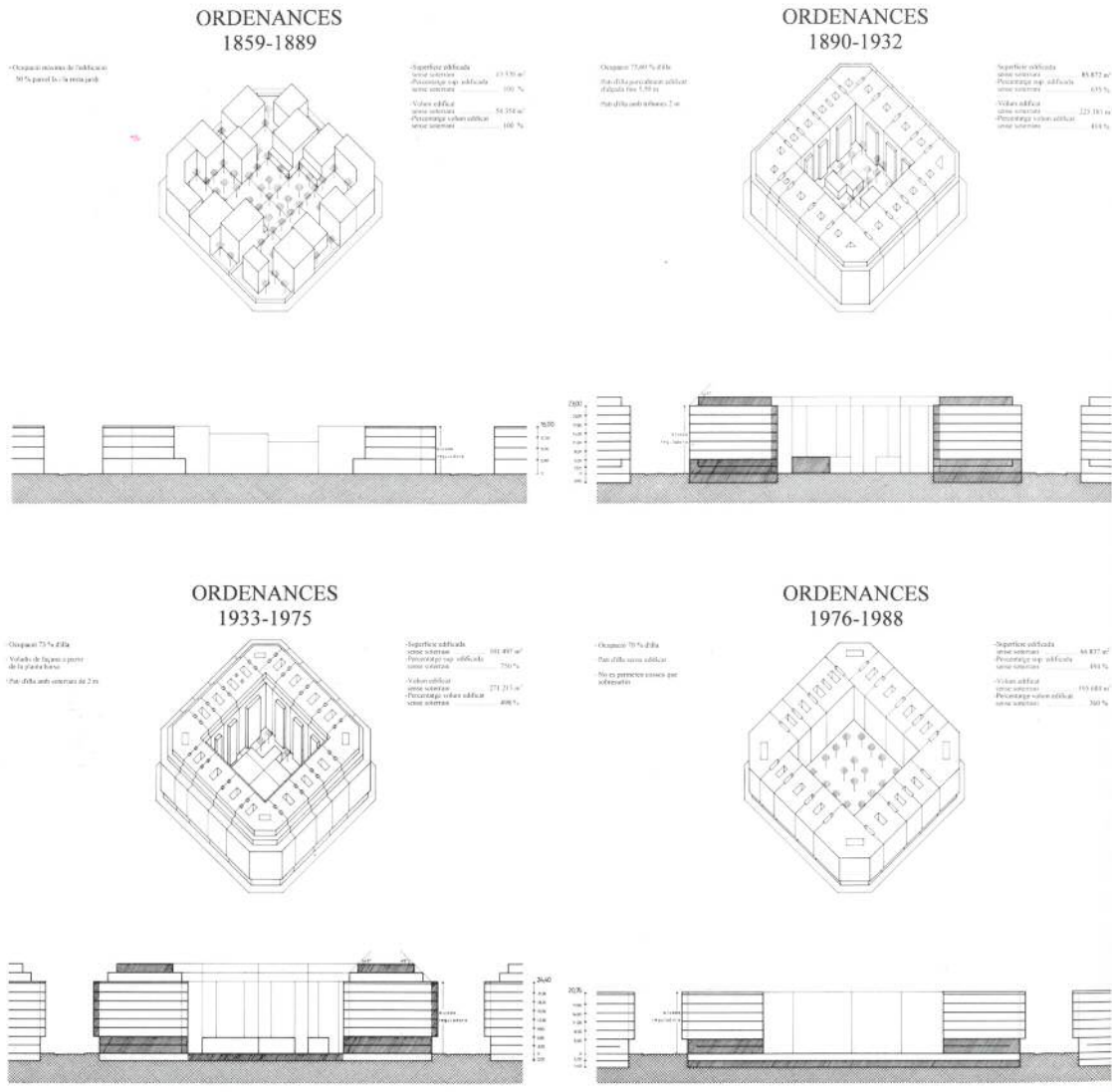


Fig. 1.2.9 Evolution of the block through changes in regulations (*ordinances*).



Fig. 1.2.10 Evolution of the Block through regulation changes.

defined from the outside to the inside by a line of trees placed on the edge of the pavement that together define the limit between the space for vehicles and pedestrians. In some streets, this line of trees is doubled up, creating a stronger edge. Then the pavement links the section of the street for vehicles and the buildings; the "in-between". The building is a clear limit defining the street and also distinguishes the public and private realm, which poses the question as to whether the building is the limit, the in-between or just the façade? The building band is composed of a series of residential units and these are adapted to solve both formal (corners) and technical (lighting, ventilation, etc) problems. Therefore, the basic building type adapts to its specific location within the band. Traditionally, the basic building type locates the more public rooms with views to the street and the more private ones with views to the interior of the block. There is also a gradation in a similar sense between the ground floor and upper floors. The building band faces a hollow open space on the ground floor.

The residential units have direct access to their ground floor private open space, comprising a garden and a strip of space between the building and the garden. The green private gardens lead to the middle communal open space providing direct access to and from the street through the open side of the block. The communal space is sheltered by two-storey buildings that formalise the entrance and provide a visual control into the communal open space. The private gardens are visually exposed to the street through the fence that separates the private from public property and the corners are emphasised by the building band. The atmosphere and scale of the street that runs along the open side of the U-blocks are defined by the open space of the block. The line along this side that separates public from private property varies, yet establishes a rich variety of situations where the physical limit differs from the visual limit. The character and atmosphere of the street is established by that specific relationship, exposing the private, more domestic domain and its inherent scale, to the public. For the pedestrian, the ultimate, firm and far away limit is defined by the back of the building band, although there are many other layers between this and the more immediate limit.

By contrast, the limit between inside-outside, private-public and domestic-collective-public on the other three sides relies mainly on the building becoming the inhabited limit. The inhabited limit may be designed to adapt and respond to what it is limiting. For example, the most simple and evident responses will be the building reaching a certain height and openings adopting specific dimensions to establish the scale of the street and sense of publicness.

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drawing is presented in *Ibid.*, p.256 and Busquets Grau, p.139.

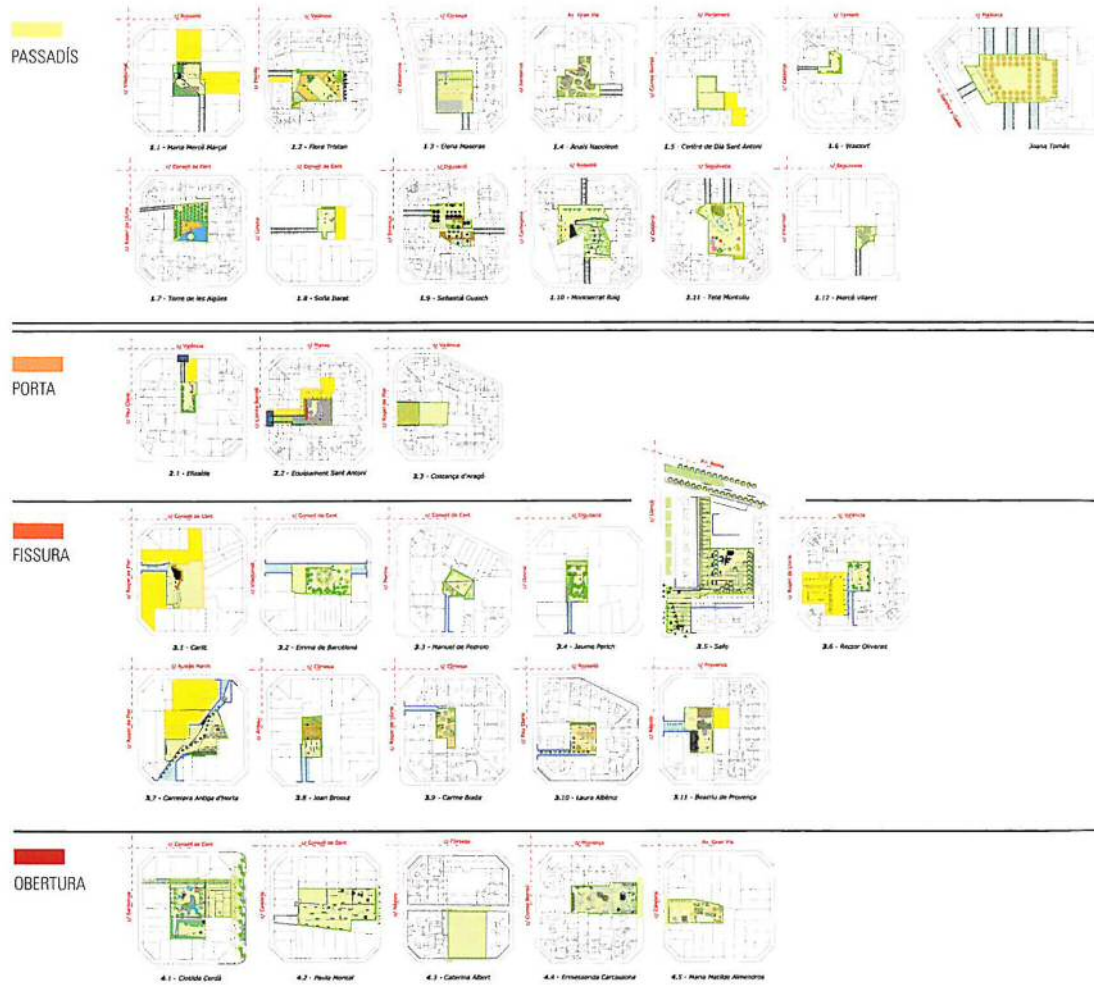


Fig. 1.2.11  
Typologies of inner open spaces of the Block.

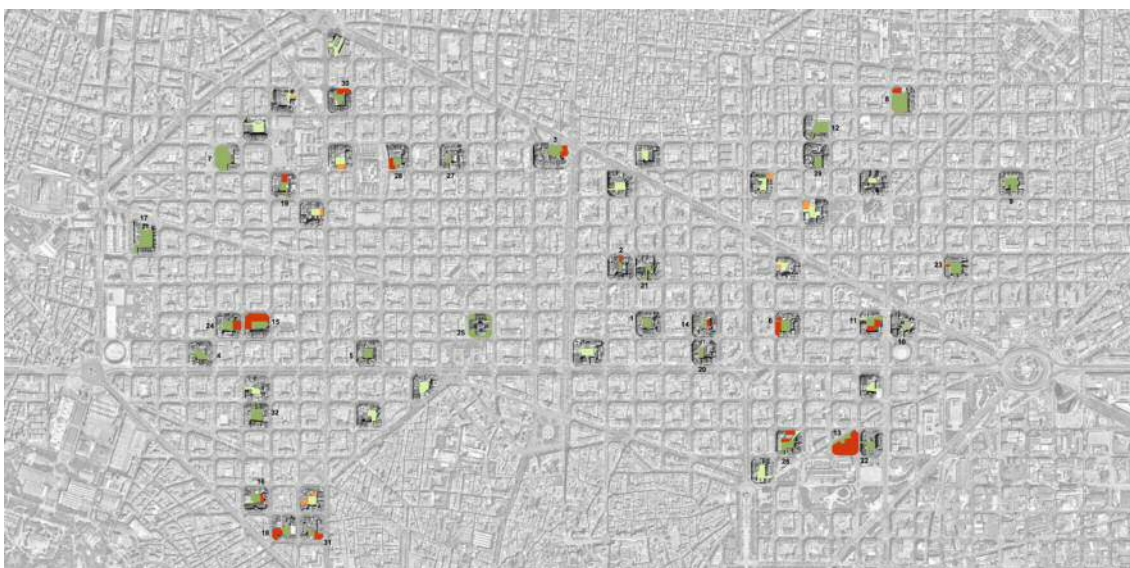


Fig. 1.2.12  
Map of Eixample with recovered Block interiors as of 2009.

Nevertheless, the typical block of the *Eixample* of Barcelona as built, rather than as planned, is different due to a large and complicated number of issues related to ordinances not approved at the time the masterplan was approved.<sup>28</sup> The intention of an open U-shaped block, the block defined with buildings on just two sides, or three on some occasions, has in reality been realised in the form of a complete perimeter block with a continuous border-the façade. The interior void has been occupied by the owners and users who have access to the ground floor. Moreover, the buildings of the perimeter block as realised are deeper in plan than originally intended by Cerdà. Therefore, Barcelona ended up with an *Eixample* where the block is quite consistent, but contains endless diversity<sup>29</sup> at different levels and with much higher densities than expected, compromising Cerdà's idyllic vision.

### Recovery of the Interiors of Blocks as Public Spaces

In the 1980s, the issues of high densities and flows of traffic began to seriously compromise the use of the *Eixample* for residential use and as a consequence, new ordinances were approved, forcing developers to leave part of the interior of the block free of buildings to be landscaped.<sup>30</sup> Additionally, in the 1980s, *Proeixample S.A.* (dissolved in 2012 and currently part of Barcelona Infrastructures Municipals-BIMSA)<sup>31</sup> jointly with the city of Barcelona and Catalan banks, started the initiative of recovering the interior of some blocks for public access and use. The method used is simple, cost effective but slow. *Proeixample* paid for the development of the design and implementation of these spaces by the development and sale of the remainder of the land for apartments and building facilities. The first interior was opened to the public in 1987; *Jardins de la Torre de les Aigües*.<sup>32</sup>

The concept is that all residents will have access to a garden no more than 300 meters from their homes. By July 2014, Barcelona had recovered a total of 94,000sqm of open “green” space as part of the interior of blocks spread over 45 *Jardins*.<sup>33</sup> The target is 50 *Jardins* and those

<sup>28</sup> Soria y Puig, p.302.

<sup>29</sup> Diversity understood in Jacobs’ terms. Diversity of land uses vertically and horizontally, diversity within a façade, a block composed of many façades, diversity of streets within measurement, for example.

<sup>30</sup> Busquets Grau, p.369-370.

<sup>31</sup> Jaume. V. Aroca, *Trías Unifica las Empresas Municipales*, La Vanguardia, 25/05/2012 <<http://www.lavanguardia.com/politica/20120525/54298893720/trias-unifica-las-empresas-municipales.html>> [Accessed 21 April 2018].

<sup>32</sup> Permanyer in Azqueta *et al.* p.9.

<sup>33</sup> Patricia Castán, ‘El Eixample se oxigenará con 5.000m<sup>2</sup> verde más’ *El Periódico*, 18/01/14 <<https://www.elperiodico.com/es/barcelona/20140117/el-eixample-se-oxigenara-con-5000-m2-verdes-mas-3020695>> [Accessed 21 April 2018].

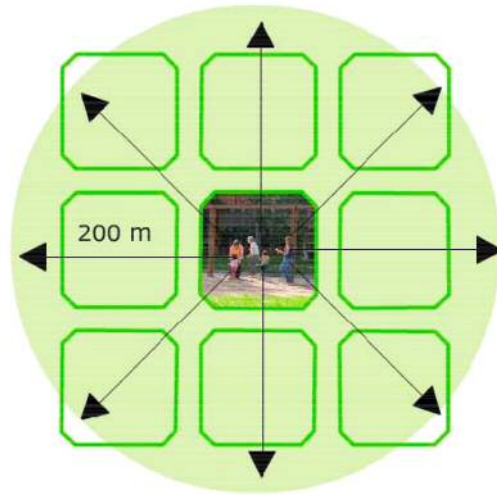


Fig. 1.2.13  
Objective for the recovery of inner open spaces in the Block.

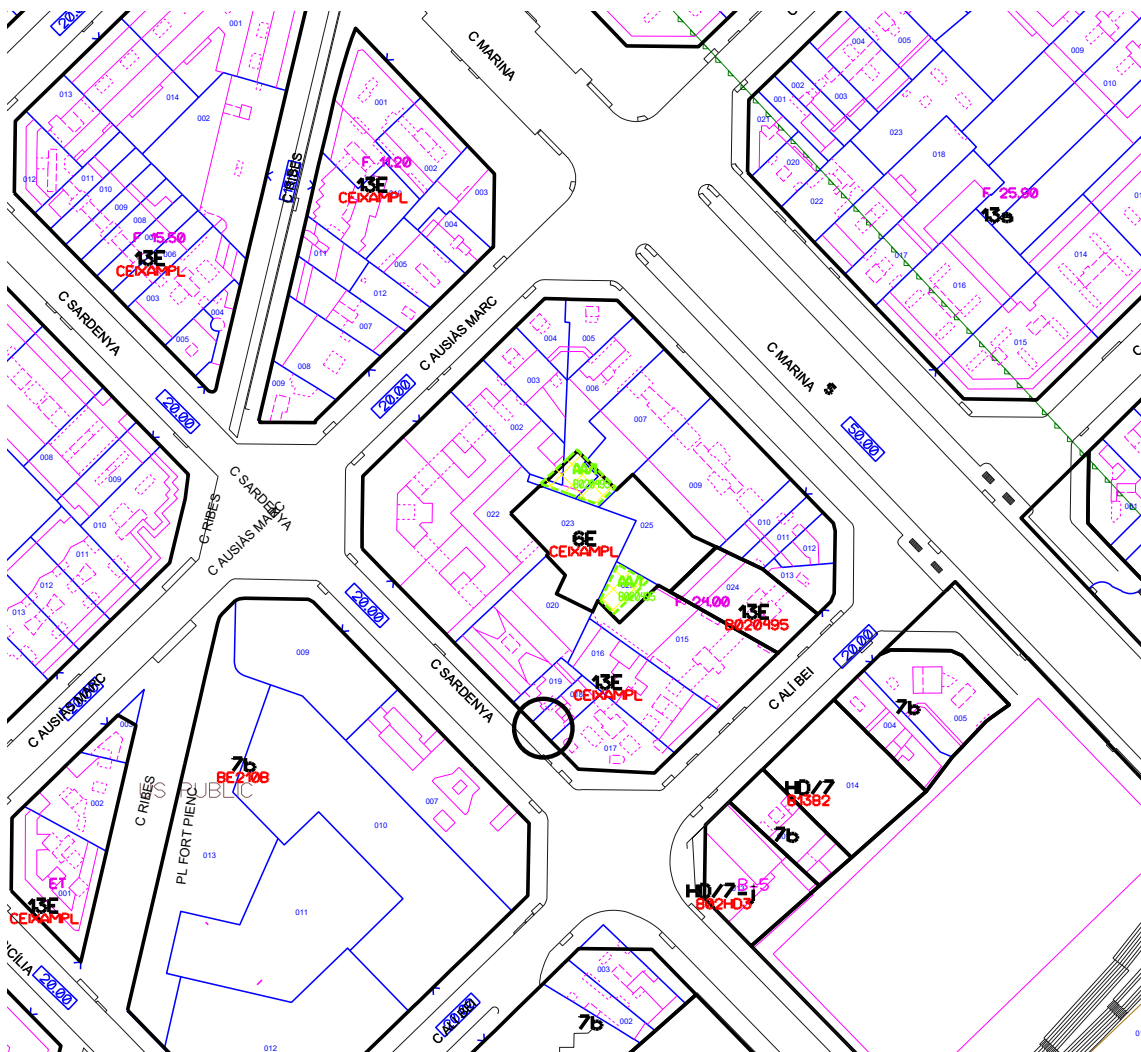


Fig. 1.2.14  
Block Jardins de Lina Òdena.

recovered range from just under 500sqm to just over 7,500sqm.<sup>34</sup> Therefore, the *Eixample*, at some points, is recovering a sense of Cerdà's intended spirit. Of course, the amount of open space provided with these *Jardins* is symbolic in relation to what Cerdà originally planned, but it is implementing that missing layer of the type of open space belonging to the neighbourhood scale; a type that contributes to the quality of life and defines residents' lifestyles.

A great number of these *Jardins*, while complying with the ordinances, include a facility such as a surgery, nursery or library, contributing to the social use and mix of these spaces. These recovered spaces are directly linked to the residential units and the street and in some cases, as mentioned above, have a public use. The following section presents the *Jardins de Lina Òdena*, an example of these recovered *jardins*, which I have used as a case study to explore the intersection, filters, transitions, juxtapositions of spaces and subspaces and their associated limits.

### ***Jardins de Lina Òdena and the Block***

*Jardins de Lina Òdena* sit in an ordinary *Eixample* block, near to the *Parc de l'Estació del Nord*<sup>35</sup> and the concert hall.<sup>36</sup> However, the map dated 1891 by D.d.M. Serra shows how this block, adjacent to the 50-meter wide *Carrer*<sup>37</sup> *Marina* and the 20-meter wide streets *Ausiàs Marc*, *d'Alí Bei* and *Sardenya*, was crossed by the red line delimiting the municipalities of Barcelona and *Sant Martí de Provençals*. The block is around 113x100m, differing from the typical 113x113m, giving extra space to the *Carrer Marina* that later on became the sole limit between the two municipalities, until 1897 when *Sant Martí de Provençals* became a district of Barcelona and is now simply known as *Sant Martí*.<sup>38</sup>

This block is composed of 19 plots of varied sizes, ranging from 7m to 55m of frontage built between early 1900s and 1990s. Plots built after 1988 comply with the new ordinances with a maximum of six storeys, while the plots with older buildings are seven storeys high. The upper floors are dedicated to residential use, while the ground floors contain communal access to upper floors, access to underground car parking, retail (pharmacy, bars, garage, etc) and some

<sup>34</sup> Azqueta, p.159-160.

<sup>35</sup> The station was initially built in 1860s and the building refurbished and the park implemented in the late 1980s as part of the recovery of public open spaces in Barcelona (Busquets, *Barcelona, The Urban Evolution of a Compact City* p.349).

<sup>36</sup> Designed by Rafael Moneo Vallés and opened in 1999.

<sup>37</sup> *Carrer* is the Catalan word for street.

<sup>38</sup> Busquets, p.189.



*Fig. 1.2.15*  
*View of Carrer Ausiàs Marc.*

commercial units. Buildings built after 1988 include one or two underground floors of car parking. The interior open space for public use, the *Jardins*, was recovered in two phases and from three plots. In 2007 the first two plots of 1,319sqm were recovered and in 2009 another 439sqm.<sup>39</sup> This space is be accessed from number 172 *Carrer Sardenya* via a narrow passage and from number 121 *Carrer d'Alí Bei*, through a ground floor tunnel passage running under an apartment building.

### Experiencing the Street

Walking along the streets *Sardenya*, *d'Alí Bei* or *Ausiàs Marc*, the pedestrian easily understands the historical street and block typology, defined as it is by the facades of the buildings belonging to and formalising two perimeter blocks as well as the street –the space between buildings. The pedestrian inhabiting this in-between space can read many of the properties of the block that define the street and make it particular. When she walks along the street; she is in a void, an in-between, with simple limits defined by the façades and the floor acting as a continuous background framing the sky, and within this void, things are spatially arranged and displayed through time. Yet, this is just a first and simplistic impression. As she reaches the end of the block, at the road intersection, the sky has a more prominent presence as does the floor. The façades spill out to form the chamfers and she becomes aware of the blocks. Until now the façades contained, limited and belonged to the void she inhabited. Now, the façade nearest her limits, contains and belongs to the block, the mass. But very soon, after crossing the street intersection, she enters the street where the façade again takes on the earlier role. Nonetheless, its duality<sup>40</sup> has been revealed.

### Pavement

Back walking along the street, she walks on the pavement- a section of the floor- paved with utilitarian concrete tiles with differing patinas, making her aware of the world under her feet and which reveal the many times this section has been excavated to access the services beneath.

The pavement is an inhabited surface and has two visible ends. One side is defined by the

<sup>39</sup> This information is taken from the periodical journal published and edited by the ProEixample S.A. to provide information to the citizens; *La Revista de L'Eixample*, numero 24, April 2008 <<https://bcnroc.ajuntament.barcelona.cat/jspui/bitstream/11703/93586/1/12247.pdf>> [Accessed 14 July 2018].

<sup>40</sup> If the façade is a double limit to the block and street it will need to obey the needs of both when these will probably be different making it work as an intelligent membrane. This is the term used by Gehl, Jacobs, Stevens and Alexander. This condition also refers to the interface studied by Bobić who refers to it as the place where the individual and community encounter and negotiate their differences and this translates into mutations and the community is stronger as it stays for longer.





Fig. 1.2.16  
View of opposite facade.

building, or more specifically, the line that defines the intersection between the façade and the floor; yet this line sometimes disappears and then reappears again.<sup>41</sup> The other side is delimited by the kerb.

The crisp line of the kerb is preceded by “things”, like trees with their associated tree pits all perfectly aligned, and streetlights and sign posts more or less again aligned together, constituting a strip of “things”. This strip buffers<sup>42</sup> the opposite façade, and this experience is stronger if there are cars parked along the kerb. The opposite façade is a limit that comforts; it is constant, present in her peripheral view and in her mind. Thus, the strip of things is a soft and permeable edge as it is transparent,<sup>43</sup> allowing her to see through. This strip in conjunction with the cars parked alongside the kerb emphasises the pavement as her realm. She is on it but also in it.

The pedestrian turns around to cross to the other side; then, she feels that she is between façades but in a different way than just a moment ago. The nearest façade is behind her and she is facing the opposite façade. The façades before were guiding the journey. Now, with this 90-degree turn, one of the façades is there, behind her, only in her memory and the other is in front of her acting as a limit that she can locate, but which cannot be transgressed. The type of view and perspective have changed and with them the referential elements.<sup>44</sup>

Before, the pedestrian was walking along the street and the lines of the pavement such as the kerb, side façades, the virtual line linking the trees and so on converged at eye level far away – the vanishing point. The point where all lines converge moves further away as she walks but also moves up and down as she turns her head up and down continuously changing the emphasis of the surfaces and lines. When she looks down occasionally, the surface of the pavement with the two ends takes most of the view, and the surface is the very nearest limit of the view. When she looks up again, the pavement and the near façade frame the view; limit it, as well as providing protection. Perhaps this is due to familiarity, or due to the fact that these limits are anchoring and locating her. When she moves her head up, the point where the lines converge also rises.

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<sup>41</sup> Lynch said that an edge or boundary can be fragmented, not continuous. This limit is fragmented but not so much as to lose the line or this is recovered at a different level by the façade.

<sup>42</sup> In the sense that visually it covers part of it and it emphasises the distance. The strip helps to define a here and a there; helps to place the line or strip between the two.

<sup>43</sup> Transparent in the sense that I can see through but simultaneously it has a presence not just on the floor but also vertically.

<sup>44</sup> Holl, Pallasmaa and Pérez-Gómez explain the importance of the composite of the different grounds on views and the relation of the views. Here the foreground, middle ground and background are starting to be understood as parts and their interrelation.



*Fig. 1.2.17*  
Bikes colonising the strip.



*Fig. 1.2.18*  
Kerb allows access (from road).



*Fig. 1.2.19*  
Kerb allows access (from pavement).

The nearest façade and the soft edge at the other side, with the other façade far away, provide clear limits containing her view and the pavement takes secondary place. As her eyes rise further, the façades frame the far away sky and, at some point, the façades, before experienced as surface-limits, take precedence at the rims. In this case, the rims<sup>45</sup> are two irregular continuous lines, each formed by the edges of the buildings that constitute the façades. The point where the lines converge is far away in the sky, impossible to place, contrasting with the nearer converging point projected on the pavement on the opposite point of the journey.

Now, she has turned 90 degrees again, and is now facing the opposite façade. The view has changed from one-point to two-point perspective. Before, the view had depth and was laterally defined whereas this view is flat. This is due to her now facing the opposite façade at a relative short proximity which lacks side limits. Now, the façade becomes the background where the “there” ends and “things” are placed or projected. It presents itself as static, whereby as she moves towards it, it changes little and the depth is read by the layers of things against it. Near the end façade there is the line of trees, and the lamp posts emerging behind the parked cars are projected on the background. She may see fragments of the kerb or may imagine it based on the experience of the “here”. To get “there”, she needs to overcome the “here”.<sup>46</sup> She walks towards the line of the kerb crossing the tree line while constantly looking down and up; swapping between these two views. The down view is defined by the near limit of the pavement where she stands, which she is feeling and measuring with her feet. The up view is limited by the background, the façade, at a fixed distance. These two views with their associated limits relocate her in relation to the kerb and the immediate context.<sup>47</sup> She reaches the kerb, she stops and looks to measure how far the foot must go down and back up to align the body. Then, the body is alerted that something is happening based on the change of perspectives and it is accentuated due to the slight change of the eye level (around 150mm) as she stepped off the kerb. Her reach of view has decreased as she loses a little height and her immediate limits have again changed while the overall remain. All this happens very quickly and seamlessly. Consequently, the line of the kerb has a special meaning for the pedestrian as she walks along it,

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<sup>45</sup> Jane Jacobs referred to the rim of the park that was presenting the park but not contributing to its life. The rim of the buildings framing the sky is fixed and unchangeable line framing and defining the here and there of Cullen.

<sup>46</sup> The "here" and "there" are used in the same way as Gordon Cullen in *The Concise Townscape* (Oxford: Architectural Press, 1961), pp.9-10. The person is located by the here and there and there is a limit differentiating one from the other.

<sup>47</sup> Stevens explained that people position themselves in relation to boundaries. Although, the description presents how the person identifies his position in relation to the limit. Thus, one understands the place through its limits.



*Fig. 1.2.20*  
Facade providing access to residential units above and to retail on ground floor.



*Fig. 1.2.21*  
Facade providing access to car parking below, residential units above and retail on ground floor.

crosses or experiences it from the opposite pavement. This line<sup>48</sup> adopts a special meaning for those who look after children. This line is a limit, a line of safety defining a territory of freedom and a possible area for content, controlled play, to stop to talk, to have a drink or even to leave the motorbike.<sup>49</sup> The kerb may act as the hinge of this buffer strip with one side containing the trees, light posts and signage aligned and the other containing the parked cars.<sup>50</sup> The first side is often used by children for playing, or motorbikes colonise it for parking. The second is the psychological barrier as it contains space even though this may not be continuous.

It is interesting to observe how the strip is read by the users and consequently colonised by tables and chairs, creating focal points of inhabitation and motorbikes.<sup>51</sup> The line defining the change of level is read differently by cyclists, disabled people or people pushing pushchairs, as they are looking for the areas where this line meets the lower level with a mini-ramp, as for them this is the only accessible point within the line. Hence, this is read and understood differently by different users.

## **Façades**

The façade is a primary element with immense presence in her experience. Before, she experienced the rim, constituted by the edge at the upper end of the façade, which presents and frames the sky as she looks up. But, she also experiences the lower end, the line as a result of the intersection of the vertical surface (the façade) with the horizontal surface (the pavement). Thus, the façade connects and separates the sky and the floor, which are fixtures in our experience.

At a first glance, the continuous façade defining the block is a simple limit, but it is in fact a complex surface through which the plots composing the block meet the public. The ordinances

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<sup>48</sup> This line refers to the exposed edge of the kerb that is the point where there is a change of level. For many, this is a line that exposes danger as people can fall. But, in this case, it is a line, a limit that protects as it is associated with a strip. Thus, this is a physical as well as a psychological boundary.

<sup>49</sup> The kerb and the edge (line) of the kerb is multifunctional relating to Whyte's observations. This has different meaning depending of what we do at each specific moment and also with whom we are.

<sup>50</sup> The limit of the edge of the kerb, the line has a band associated providing a width with different content and each side is different as it negotiates different situations. The tensions and negotiations the kerb suffers are different to the ones presented by Miloš Bobić with the interface, but these are comparable in the way they operate.

<sup>51</sup> The physical elements comprising the strip are stationary but then the way this is daily colonised or the pass of the sun it makes it dynamic and changeable in a rhythmic way. Furthermore, Lynch believes that parts of a boundary can be attractive or repellent and the colonization tells us that parts of this limit are more attractive than others for specific activities.



*Fig. 1.2.22*  
Facade providing access to car parking below, residential units above and retail on ground floor.  
Source: By Author.

stipulate simple parameters e.g.: all plots must be built up to their exterior line, becoming part of the block façade (alignment), the maximum height of the building and the maximum number of floors, which ensure that the street is experienced as a simple void defined by a robust building line, the façade.<sup>52</sup> Simultaneously, the façade is the mediator between the public and private realm made of different segments (building façades ) that diverge from each other, manifesting the ownerships as well as meeting the parameters defined by the ordinances.<sup>53</sup>

Thus, the block façade includes variation in the types of perforations: windows and doors and in some cases tentative projections (balconies) sprout from it and all these variations sit within a canvas. Wherever she looks, she experiences diversity and difference, but concurrently they are all the same.<sup>54</sup>

### **Façade at Ground Floor Level**

Focusing on the eye level of the façade (the ground floor) it not only carries a clear meaning defining where private property starts, but it also articulates the two realms by providing access to the private from the public. This articulation is formalised in a variety of ways depending on the direct link with the use on the ground floor and the adopted form of access to upper floors. The variation and differentiation found on the upper floors is greater than on the ground floor in the way the relations between private and public are formalised.

At all times, the line of the façade is present and only perforations allow access to the private realm by framing. The perforations of the façade, in the older buildings, reveal the width of the façade, its four sides are formalised, the door is inserted and lined up with the private side of the façade, the doorbells are placed on the reveal and the change of level between public and private is resolved at the outer leaf of the façade. The reveal of the façade is small, smaller than the width of our body, but this is that space where she shelters to ring the bell when visiting her friend, becoming aware that she is in an in-between; neither in her friends' place nor still on the street. In many cases, this perforation has a balcony over at first or second floor level, sheltering

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<sup>52</sup> Due to the clarity and simplicity between mass and void of the street the figure-ground map comes to mind and while walking through the street, the void takes priority.

<sup>53</sup> Celebrating diversity as Jacobs advocated but in this case within uniformity due to the building alignment. It seems that what Stevens said about boundaries in relation to people of "togetherness and distinctiveness" applies here to the façade as entity.

<sup>54</sup> It reads as an immense ground that contains some figures; here and there somehow related but also independent. She only can concentrate on the figures and at some points on one figure forgetting the ground or the way around. Just as the face and the jar; the figure-ground of the Gestalt; you see one side or the other but not both simultaneously.





Fig. 1.2.23  
View from Carrer Sardanya and access to the Jardins.



Fig. 1.2.24  
Access to the Jardins from Carrer Sardanya.

the door and her from the weather. Sometimes this ground floor hosts retail shops and the opaque doors are changed for glass doors that frame the inside, providing an advertisement for the goods within.

In some instances, and particularly with newer buildings, the residential accommodation placed on the upper floors sits on a podium. The podium is a skin that is perforated to provide access to the residential space above, car parking below and hosts any retail and commercial units. The skin folds inwards into the private domain, creating a recess and a moment to house and celebrate the communal access for residential space above and parking below. The façade of the upper floors assumes a new alignment from the width of the narrow balconies in the old buildings, creating a continuous overhang.<sup>55</sup> To this overhang, balconies are added where necessary, based on the programme inside but also in relation to the views outside or at least to compose the façade.<sup>56</sup> On the ground floor, the architect may wish to blur the separation between private and public by creating a welcoming and seamless entrance,<sup>57</sup> but this is boycotted by the reality of duties associated with ownership, resulting in different pavements as per different owners and managements.<sup>58</sup> The access to underground car parking is resolved in a similar way to the accesses to residential units, celebrating the entrance and aiming for a seamless transition but for very different reasons. Moreover, this access is marked on the kerb that drops to allow vehicular access. At these entry points, the car invades the domain of the pedestrian, creating an area of tension between these two types of users. The pedestrian has the priority, and this is shown by the continuity of pavement for the pedestrian.<sup>59</sup>

Commercial and retail uses that are accommodated on ground floors follow the same principles as the residential, with perforations in the façade, but what were opaque residential doors in the first case, become transparent glass in the second. In newer buildings, ground floors accommodating these uses expose the structure of the building and big glass panels are inserted in between, creating a visual link between the two domains. The inside is exhibited to the

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<sup>55</sup> Complying with the regulations about protrusions on public realm.

<sup>56</sup> Thus, the balcony is a limit where the tensions between needs and wishes from the public and private domains are negotiated and ordinances complied. Jacobs, Bobić, Stevens and Alexander refer to the boundary as a negotiator and Alexander specifically talks about the boundary being able to harmonise differences.

<sup>57</sup> This agrees with Lynch understanding that the boundary is barrier not allowing but also a seam seeking some sort of continuity.

<sup>58</sup> In this case, the different types of pavement show a significant limit but in a subtle and simple way. She may notice the difference of pavement, but she won't think the reason and what reflects.

<sup>59</sup> The tension in this area (from the road to the building intersection the pavement) is negotiated by the uses, people and the physical impact and formalization of the tension is kept to minimum.



*Fig. 1.2.25*  
Access to the *Jardins* from *Carrer Sardenya*.



*Fig. 1.2.26*  
Access to the *Jardins* from *Carrer Sardenya*.

exterior, inviting people to consume visually their goods rather than with the aim of blurring the limit between public and private. Bars put tables outside, in the strip of things associated with the kerb, ensuring that part of the pavement is not interrupted, thus allowing free movement for pedestrians. Waiters move constantly between the inside and outside of the bar premises in the opposite direction to that of the pedestrians and the waiters need to negotiate<sup>60</sup> this crossover with the pedestrians, who have the priority. Consequently, at this level, a little part of the street starts to belong to the block.

### **Access to the *Jardins***

The accesses to the *Jardins* are through two different passages from *Carrer Sardunya* and *Carrer Ali Bei*. The access from *Sardunya* is marked by five elements grouped into two: a narrow gap between buildings with a grille on the floor to collect the rain water and metal posts at each end of the gap set against the buildings and, on the other side of the pavement, a mini ramp reinforced by two sign posts (actually not very visible, as they are part of the general visual clutter of the strip of things) along the edge of the pavement where this meets the tarmac. The pedestrian's conical perspective, experienced while walking along the pavement where the access is placed, is disrupted by another conical perspective<sup>61</sup> when the pedestrian notices the gap between the buildings and turns her head around. Nonetheless, this disruption is gentle, as all the elements are placed within the system and thus within their limits. Therefore, the access is discrete, indicating that it is designed for the neighbours living in the block or surrounding blocks, but not to attract the general public.

Once she decides to enter the *Jardins*, the very long and narrow gap between the two buildings is revealed, establishing a clear set of limits. In first place, the view is limited and framed by the walls and floor constituting the gap. These are the "there" framing the "over there" and the "here". The street facades sharply fold to create the gap. The side posts that host the steel gate with the grille linking the posts define the limit between "here" and "there". The "there" ends where the light starts again, at the other side of the long and shaded gap. At one moment, the gap is an invisible space encouraging her view to focus towards the end, the oasis. The oasis, "over there" is intriguing, full of light and greenery and these elements are contained by the far away façade; again, the façade takes the role of linking the floor and the sky. At another

<sup>60</sup> This is a tension and negotiation where the pedestrian (again) has more power and the waiter as individual needs to handle and deal with it and the pavement has not been compromised or designed for this situation.

<sup>61</sup> There are other views as she turns her head around though this happens very quickly.



*Fig. 1.2.27*  
Arriving to the *Jardins*.



*Fig. 1.2.28*  
Domestic realm meeting the collective- public space.

moment, the gap manifests itself as she feels the drop in temperature and is spatially squeezed by the two façades belonging to the perimeter block, urging her to move quickly. She is not in the street, she is not in the *Jardins*. She is in an in-between,<sup>62</sup> neither “here” nor “there”.

As she walks along the gap, she is still positioned thanks to the high-up distant background (over there) of the residential façades, but a middle low ground with urban elements and lighting emerges (previously part of the background) framed by the foreground (here) and delimited by the gap forming the conical perspective. As she gets nearer to the light, the gap opens up to the right into a space with greenery, urban elements and a language that belongs to the public space. Very soon, the gap opens to the left and she feels in it, in the middle of it. She has arrived.<sup>63</sup>

### **The Jardins**

She feels enclosed, protected by the walls that separate or perhaps hide something and which are shielded with greenery creating the notion of an oasis.<sup>64</sup> This is the middle ground; the wall appears to sustain the far away background composed of a myriad of elements. She remembers the other “there”; the street, where the long view was defined by the façades presenting the residential use to the public. At this point, the “there” reveals a more private or domestic face of the residential compared to the one presented in the street. Newer buildings expose living rooms and bedrooms, while the older ones expose bedrooms, kitchens and utility rooms. The balconies facing this space show more use and personalization than the ones facing the street. The awnings adopt different positions, giving the impression that these are moved as the sun changes position. Clothes are drying, giving a sign of inhabitation and plants are growing, indicating care and delight.

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<sup>62</sup> The gap is an entity itself, an in-between, with a particular spatial configuration with tangible and less tangible agents reminding us of the interface that Bobić studied. It also evokes White’s portal making you feel in a liminal position; not “here” not “there”; expecting, waiting. Thus, this in-between sets up the physical but also psychological transition between the two realms (public and collective belonging to a community) that Stevens explains with the example of the church from the street.

<sup>63</sup> The gap and the *jardins* have a different morphology but it is also accompanied with a change of perspective influencing the hierarchy of the “here”, “there” and “over there” and correlating grounds providing an inside to Cullen’s and also Holl, Pallasmaa and Gómez-Pérez’s approaches. White said that the portal was a physical entity with presence and qualities able to orchestrate “the unfoldment of views” and perhaps this can be said of this gap. The orchestration may have to do with the “unfolding” of the hierarchy within the views of the different views.

<sup>64</sup> This limit contrasts with the boundary-transition that Clare Cooper Marcus and Carolyn Francis present to generate a porous link encouraging movement through it. This limit does not want to be transgressed physically instead desires to enclose providing the sense of containment, protection and security. In this case, it contains from both sides and delineates the two realms.



*Fig. 1.2.29*  
Space for activities.



*Fig. 1.2.30*  
Standing in an area for activities.

### The View of the Resident

The resident views the *Jardins* from an advantaged position- a high point- where she sees and can supervise most of the void defined by the walls and the greenery. For the resident, the limit is the surface of the parapet of the window or the balustrade of the balcony physically engaging with its edge. These define the “here” and the “there”, the inside and outside, the public-collective and the private. However, the resident feels that the “there”- the void- is far away and this inclined distance close to the vertical contributes to establish a hierarchy, where the private prevails over the public. The pedestrian is seen and observed, feeling inferior to the resident. The resident’s “there” feels nearer than the “there” for the pedestrian that is far away, separated by different layers formalising the limit between public and private. This dual perception contributes to developing different meanings of the *Jardins* for the resident (sense of belonging, caring for) and the pedestrian.<sup>65</sup>

### Spaces and Activities

The *Jardins* are structured by the route going through and linking the two streets. The spaces containing activities mediate between the route and the limit, the wall. In a few cases, the wall is left bare and in others greenery grows on it, or an area of green with trees is associated with it, becoming part of the limit. The activity spaces are sometimes just defined by a change of material and at other points are reinforced with a line of low vegetation, a long bench or an individual bench alongside a bin, just long enough to create a subtle and discrete limit, almost imperceptible to the pedestrian. This limit is apparent in a line where the floor materials meet without affecting the visual continuity and which can be traversed with no risk. The limit is in the materials themselves; in their careful and controlled combination. In this case, the pedestrian refers to the “this” and “that”,<sup>66</sup> as it is a close-up of a change of two spaces through materials that feel and are near. In other cases, the above takes place, but the seamless change of material is reinforced with a line of benches and a bin sitting near to where the two materials meet.<sup>67</sup> This line-strip reads as a virtual transparent wall that is penetrated by the eye, creating the “here” and “there”. It is possible to simultaneously read the “here” and “there” as well as the “this” and “that”. It reads from the ground, the strongest and clearest limit, up to a certain height defined

<sup>65</sup> The two users with different interests reveal the duality and asymmetry of the limit and how this can be selective. This may correlate with the intelligent membrane that Jacobs, Stevens and Alexander. This is not about actual physical exchange but psychological.

<sup>66</sup> These are deployed in the same way as Cullen in the 'concerning content', pp.11-12.

<sup>67</sup> These limits aim for seamless transitions between zones in the mode transitions presented by Cooper Marcus and Francis who propose complex spatial configurations entailing several subspaces.





Fig. 1.2.31  
Exit.



Fig. 1.2.32  
Exit.

by the elements of the virtual line. This limit determines the spatial configurations, relationships and how the pedestrian should access, and to some extent, use them. For instance, a line of trees is placed on a pavement to define two areas; as a limit, this is extremely gentle, although it indicates how to use the zone created, with the canopies of trees on each side of it acting as a limit. In this case, the “this” and “that” do not apply. Indeed, one might ask; to what extent do the “here” and “there” apply? The spaces in this void are associated with materials, furniture and landscape as these are used in a strategic way to define limits establishing common rules for all users. These unwritten rules help with the ongoing negotiation as to what is acceptable or not.

### Exits

Following the route, the pedestrian is invited to turn and follow a line of trees that lead to the exit. This is through a tunnel that perforates the constructed perimeter of the block and at this point she perceives the tunnel framing the other “there”,<sup>68</sup> the street and specifically the façade of the opposite block. She simultaneously experiences the “here” in opposition to the inner façade - the “there” - and the outer façade- the other “there”. The line of trees aligned with the tunnel and with the same direction present again the conical perspective, and invite the pedestrian to move. As with the access into the *Jardins*, the pedestrian encounters a high wall on the right, followed by a lower wall on the left and then moves quickly into the tunnel. She is traversing the perimeter of the block, the in-between, linking the inside and outside of the block; she is in a “here” between two “theres”. Gradually, the end light point gets bigger and the dark frame smaller and at last she is back in the “there”, or the other “there” as it was perceived from the inner courtyard.

After having experienced entering and leaving the *jardins* via two points, it can be said that these access points work as membranes. These are modest and not obvious paths from the outside, but once inside it is easy and clear how to leave. These limits are experienced differently depending on the direction you take. These are selective (more welcoming from one direction) and asymmetrical as they provide a different experience depending on the direction you approach.<sup>69</sup>

<sup>68</sup> Other “there” is used here as the “there” belong to a different domain, ruled by different norms. Psychologically the user needs to get ready and change their mind set.

<sup>69</sup> These limits seem to correlate with Jacobs, Stevens and Alexander membrane and they are in line with the characteristics of the interface of Bobić. These really helped to understand and enrich the situations mentioned by some of the urban thinkers.

## Summary

In this case, the journey; the act of moving and inhabiting different realms relating to opposing or complementary “here”, “there” and “over there”, is essential to the understanding of the limits. There is more than a limit based on their configuration, dimensions, role/s and the way in which they operate. All limits, at one level or another and in different measure and degree, delimit but also link, as happens with the kerb of the pavement. Some delimit in a subtle way, wanting to be transgressed, permitting movement across them which may combine spaces or materials in a seamless way. This is the case with the limits managed by materials in the *Jardins*. On the other side of the spectrum, there are the limits which do not want to be transgressed physically (this is not the case visually), such as the imposing but protecting limit of the continuous wall in the *Jardins*. Others are visible and formalised as in-betweens, such as the pavement or the gap and tunnel. Some limits are experienced differently depending from which side they are approached and transgressed, for example the façade, gap and tunnel, but also the rigid limit of the wall enclosing the *Jardins*. Sometimes this asymmetry is revealed to different users due to their particular interests, needs and wants. In other situations, it is about providing a different experience based on its physical qualities.

The street and the *Jardins* are both public realms, but the latter is ruled by stricter unwritten norms. This is not the private or domestic realm but a collective space, a particular “public realm” with controlled access hours, where the residents had some influence in defining the rules about what is acceptable in this space in contrast to the street, and this is somehow reflected spatially through the limits. The other “there” does not just refer to that other physical realm, but also to the rules, principles and norms which are repeated in many streets of the *Eixample* with similar characteristics and contribute to the identity of a place constructed by and for the dwellers. The “here”, for the resident, has a series of meanings developed through time (based on use, incidents, decision making, sense of ownership), connected to the sense of belonging to that specific block.

The limits, as proposed by the urban thinkers, deal with tensions and negotiate differences at different levels,<sup>70</sup> contributing meanings with associated psychological attributes. The limit is

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<sup>70</sup> The term level is borrowed from N. John Habraken. He defines it as domains of transformation and control. He says "it is easy to visualise how streets (a configuration on one level) jointly define city blocks. Within those blocks (on a lower level) buildings are built", N. John Habraken, and edited by Jonathan Teicher,

able to protect, provide a sense of security or expose risk, such as the kerb, the façade, the wall defining the *Jardins*, to name a few.<sup>71</sup>

The limits located the pedestrian and as she walked, the limits changed over and over and at great speed. Many of the limits are repeated but take a different position and often a varying role and meaning, but more importantly, they relocate her as she moves. The “here”, “there” and “over there” imply a physical limit between each of them. In many instances, it is difficult to point to a single element that defines the swap; though intuitively, there is an ambiguous zone where the change takes place. In many cases, the “here, there and over there” distinguish different domains or characters within a domain. This may be less physical and tangible but perhaps associated to the sense of belonging and protection for the residents, in some cases shared by a collective or group including the visitor.

The “here”, “there” and “over there” seem associated with the foreground, middle ground and background and these may reveal the physical limit between the “theres”. These are defined in terms of proximity or distance; near-far and the type of angle of the view; general-specific correlating with two or three point perspectives or conic perspectives. The amalgamation and superposition of views and how these unfold (time intrinsic) define our perception of a place or unfolding.

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*The Structure of the Ordinary. Form and Control in the Built Environment* (Cambridge, Mass and London, England: MIT Press, 1999), p.23.

<sup>71</sup> This compares to Oscar Newman and Jacobs who say this in relation to residential settings.

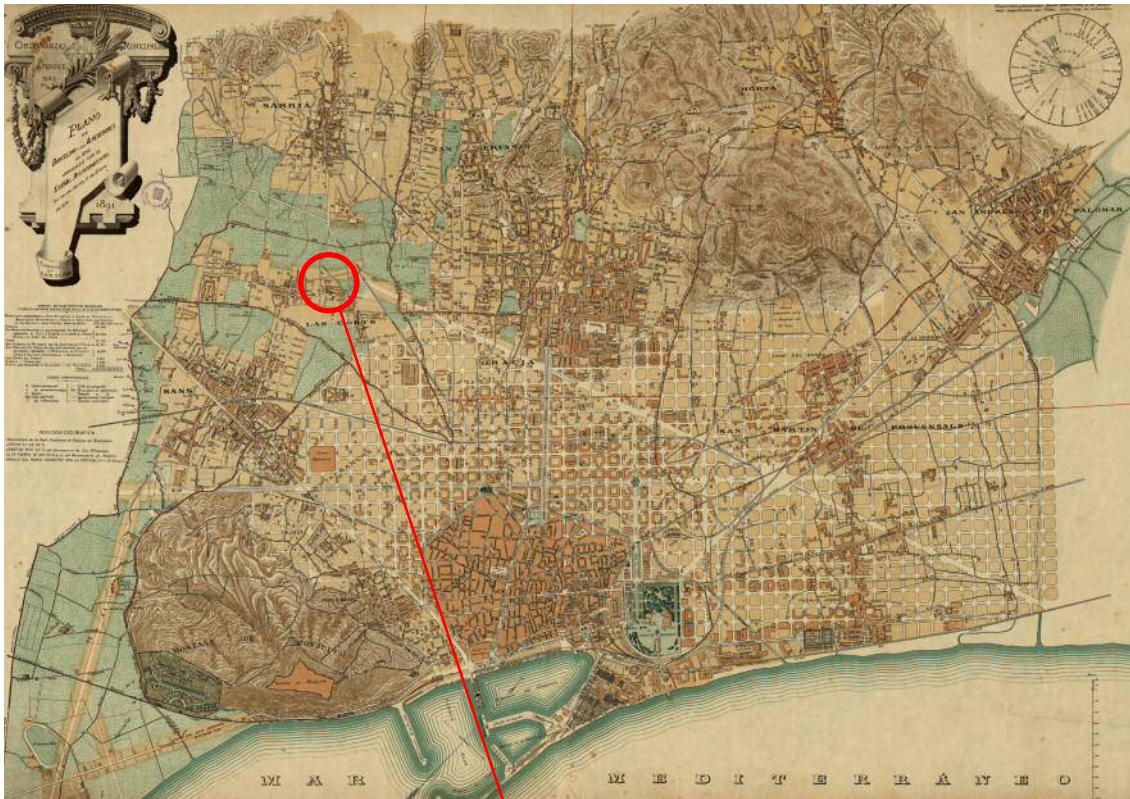


Fig. 1.2.33  
L'Illa Diagonal area map dated 1890 and approved 1891.

## The Block: *L'Illa Diagonal*<sup>72</sup>

### Historical Context

*L'Illa* is a mixed-use building, part of a superblock situated in the district of *Les Corts*, previously occupied by the former *Hospital de Sant Joan de Déu*.<sup>73</sup> It sits on the edge of the *Eixample*, right at the south-west end of the *Avinguda Diagonal*<sup>74</sup> which is a main arterial route of the city cutting, as the name implies, diagonally across the grid of the *Eixample*. *Carrer Numància*, which is part of the grid and intersects with *Diagonal*, defines one of the lateral sides of the superblock and links with the main train station of the city, *Estació de Sants*.

In 1986, an International limited competition was set up for ideas. The brief contained demands both from the city council and from the district of *Les Corts*. On the one hand, the brief demanded that the superblock should offer a response to its urban complex context in terms of scale and connectivity. On the other hand, the superblock<sup>75</sup> was one of the nine shopping centres introduced around Barcelona in the 90s to reinforce the idea of the polycentric city, where twelve parts of Barcelona were to be intensified to create sub-centres.<sup>76</sup> Consequently, the superblock had concurrently to fulfil the local requirements of *Les Corts*, as well as the wider strategic aims of the city council, with a direct effect on the programme.<sup>77</sup> The architects Rafael Moneo and Manuel de Solà-Morales collaborated in partnership to enter the closed competition<sup>78</sup> and were subsequently awarded the project. The construction started in 1990, and *L'Illa* was opened to the public in 1993.<sup>79</sup>

<sup>72</sup> *L'Illa Diagonal* refers to the main building of the development of *L'Illa Diagonal* superblock but from now on it will be referred as *L'Illa*.

<sup>73</sup> Busquets, p.382.

<sup>74</sup> *Avinguda Diagonal* is referred by the locals as the *Diagonal* and here it will also be abbreviated this way.

<sup>75</sup> Superblock refers to the amalgamation of a few blocks that become one entity. Idea explored by Cerdà with his double block commissioned by the *Fomento del Ensanche de Barcelona* already presented. See Corominas I Ayala, p.146-148.

<sup>76</sup> Busquets, p.380-381.

<sup>77</sup> Ibid., pp.382-385.

<sup>78</sup> In which Wilhem Holzbauer, Derek Walker, Giancarlo De Carlo, Mario Botta and Moneo- de Solà-Morales took part in the competition.

<sup>79</sup> Rafael Moneo and Manuel Solà-Morales, 'Equilibrio de Masas: Manzana Diagonal', *Barcelona: Arquitectura Viva*, n.35 March-April (1994), pp.50-57. The title translates as 'Equilibrium of Volumes: Diagonal block'.

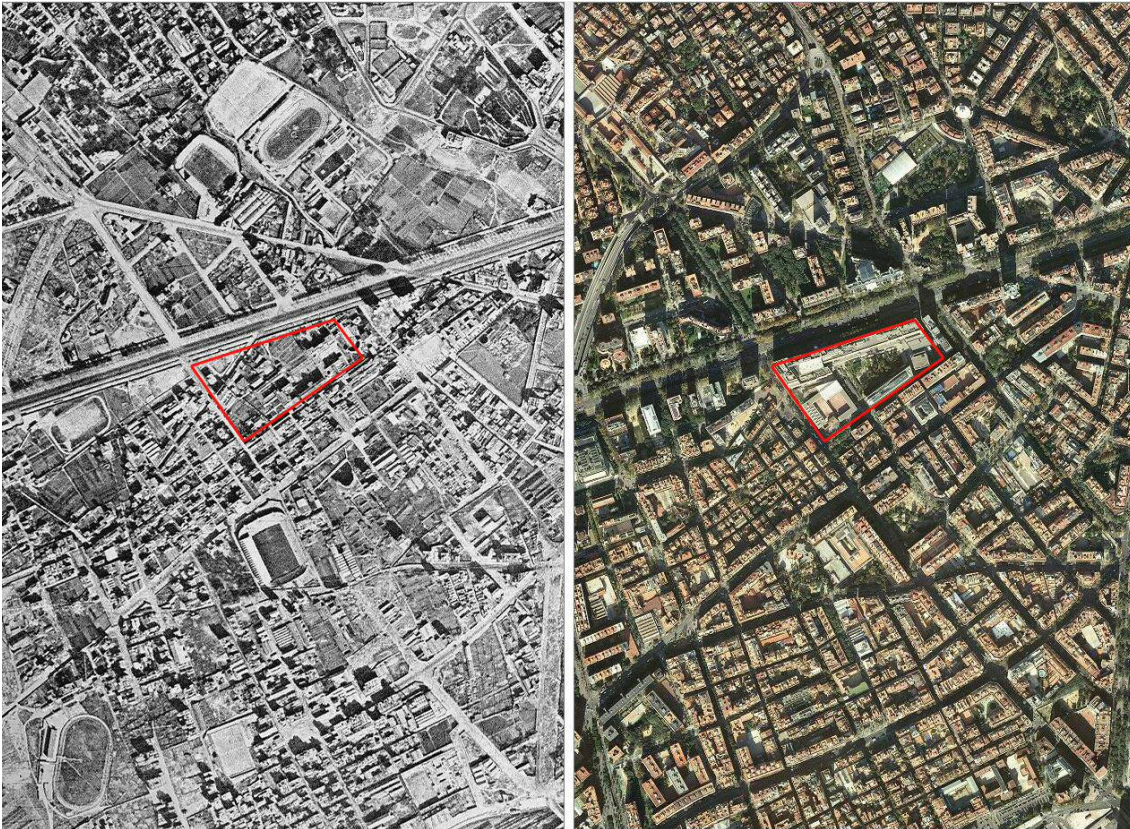


Fig. 1.2.34  
Comparitive aerial views of *L'Illa Diagonal* site, 1945(left) and current (right).

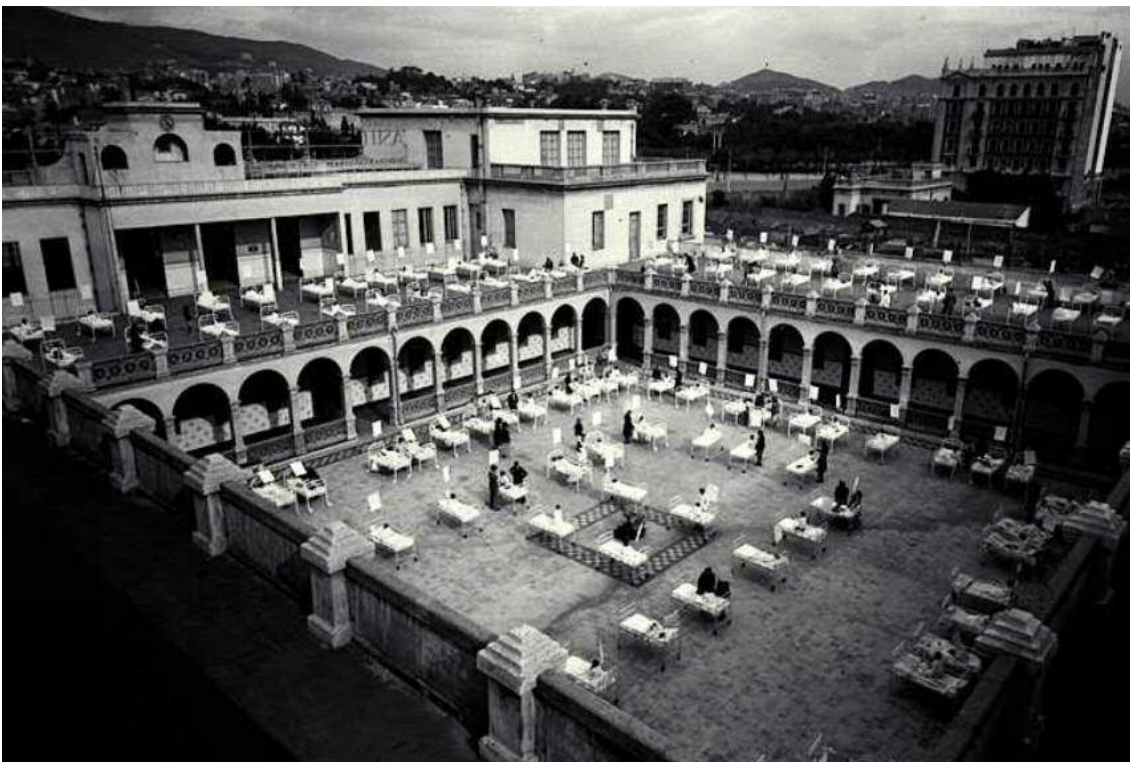


Fig. 1.2.35  
Photograph of children in courtyard and galleries, *Hospital Sant Joan de Déu*, site of *L'Illa Diagonal* Block 1881-1973.

One of the main aims of the architects was to reinstate the previously lost *Carrer Constaça* that linked *Avinguda Sarrià* with *Travessera de les Corts*. The new proposal reinstates this link with an underground passage that avoids creating a discontinuity with the other routes. The architects also decided to keep the continuation of *Carrer Anglesola* through the superblock. The superblock is bounded by *Avinguda Diagonal* to the North, *Carrer Déu i Mata* to the South, *Carrer Numància* to the West and *Carrer de Pau Romeva* to the East. *Carrer Constaça*, between *Carrer Numància* and *Carrer de Pau Romeva*, crosses the superblock underground to the West and on ground level to the East.

On the one hand, the superblock faces the *Diagonal* which is full of representative buildings for well-known brands, banks, offices and hotels. On the other hand, it is part of the district of *Les Corts*, which is a residential area with adequate mixed use in relation to its density and users. Therefore, the superblock is sited in between two very different urban conditions, scales and users.<sup>80</sup> The *Diagonal* and *Carrer Déu i Mata* are parallel but there is a level difference of more than 3 metres between them with the *Diagonal* at the higher level.

The programme of this 330m long superblock is complex and has been organised in accordance with its context. It contains the mixed-use building *L'illa*, as well as a four-star hotel, conference centre, public open space, primary school, library and a night club. *L'illa* itself contains another four-star hotel, three floors of commercial accommodation with shops of different sizes, restaurants and bars/cafes, a supermarket, a market, nine floors of offices, a sports centre, a public car park with capacity for 2,400 vehicles across four underground floors and one floor for ancillary plant and services.<sup>81</sup>

The urban context has significantly determined the composition of the superblock, its geometry and the size of the different buildings and their programmes. The superblock is formed of four buildings and a park, which is an inner public open space. Three of the buildings: *L'illa*, the school and the hotel, are placed following the perimeter and there is one free-standing building, a conference centre, to the East. *L'illa*, the main building, faces the *Diagonal* and wraps around both sides- *Carrer Numància* and *Carrer Pau Romeva* - changing in height on the sides and ends

<sup>80</sup> Thus, within the large scale, the superblock can be, itself, an in-between. It desires to integrate with the two different conditions while complementing them. For this, the superblock negotiates and deals with tensions as the needs of the district are different to the needs of *Diagonal*. Bobić may consider this superblock as his interface essential to defining urbanity, but operating at middle and large scale.

<sup>81</sup> The masterplanners opted for a high degree of diversity, as Jacobs would have done, to deal with this in-between building and the superblock as an interface. Amalgamation, juxtaposition or layering of land uses comes with intrinsic limits and demands negotiations and brings tensions defining “togetherness and distinctiveness” (Stevens).



On the Limit

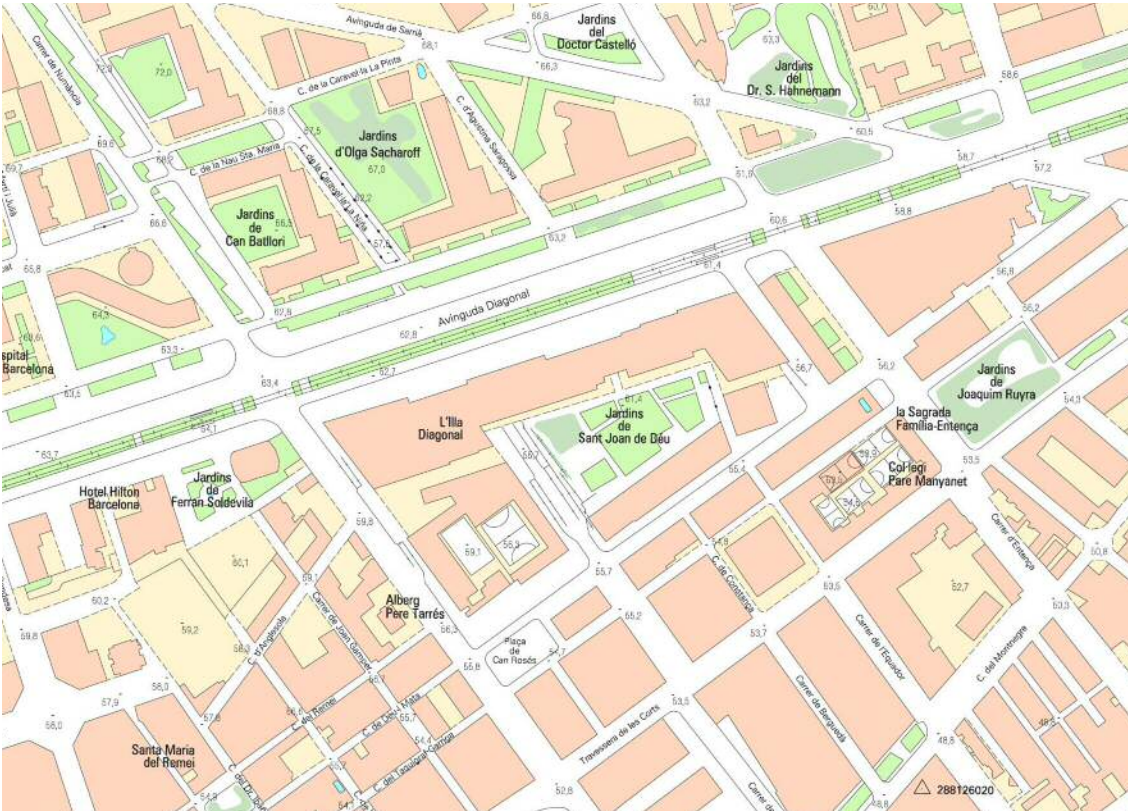


Fig. 1.2.36  
L'Illa Diagonal block, with streetnames.



Fig. 1.2.37  
View of L'Illa from Avinguda Diagonal.

to adapt to the context of the surroundings. The primary school faces *Carrer Numància*, which is an important street but of lower ranking compared to *Diagonal*. It also faces *Carrer Constaça* and *Carrer Déu i Mata* but sits back in relation to the latter, thus creating a space along the main entrance. One of the hotels also sits along *Carrer Déu i Mata*; a more residential street with low traffic volume. The conference building is placed as an object to the East of the block. The “park” is a modest green space within the block, rather than a large green area in the city as the term “park” implies. This open space is bounded by *L’Illa*, *Carrer Constaça*, the hotel and the conference centre.

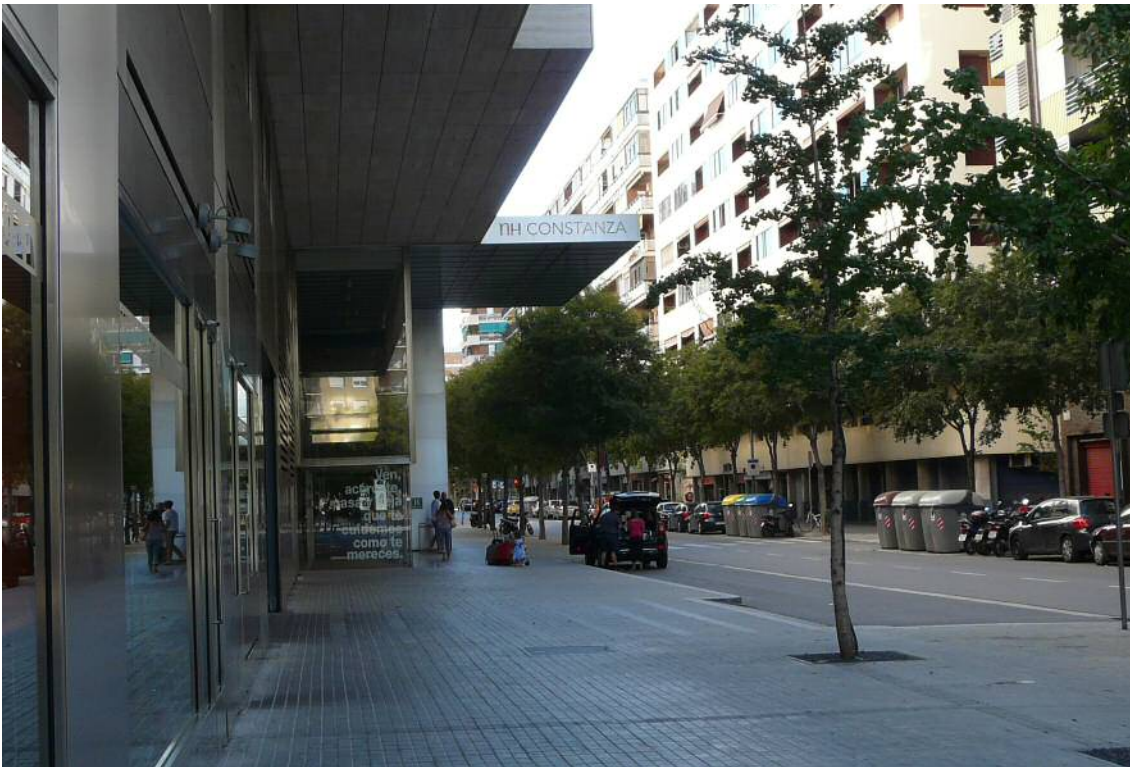
The superblock can be explained by examining its individual buildings and judging them on their own merits as pieces of architecture relating to their context and specific programmes. Their relative positions create the overall superblock, but they also respond to the diverse urban conditions by deploying a number of strategies and tactics.<sup>82</sup> The linkages through the superblock anchor the positions of the different buildings, which further influences their forms and land uses. The buildings facing *Carrer Déu i Mata* are located and sized to correlate with the North-South street connections. These connections, plus the continuation of *Carrer Anglesola*, penetrate *L’Illa*, reaching all the way to *Diagonal* and structure the public section of this building.

### **Experiencing L’Illa Diagonal**

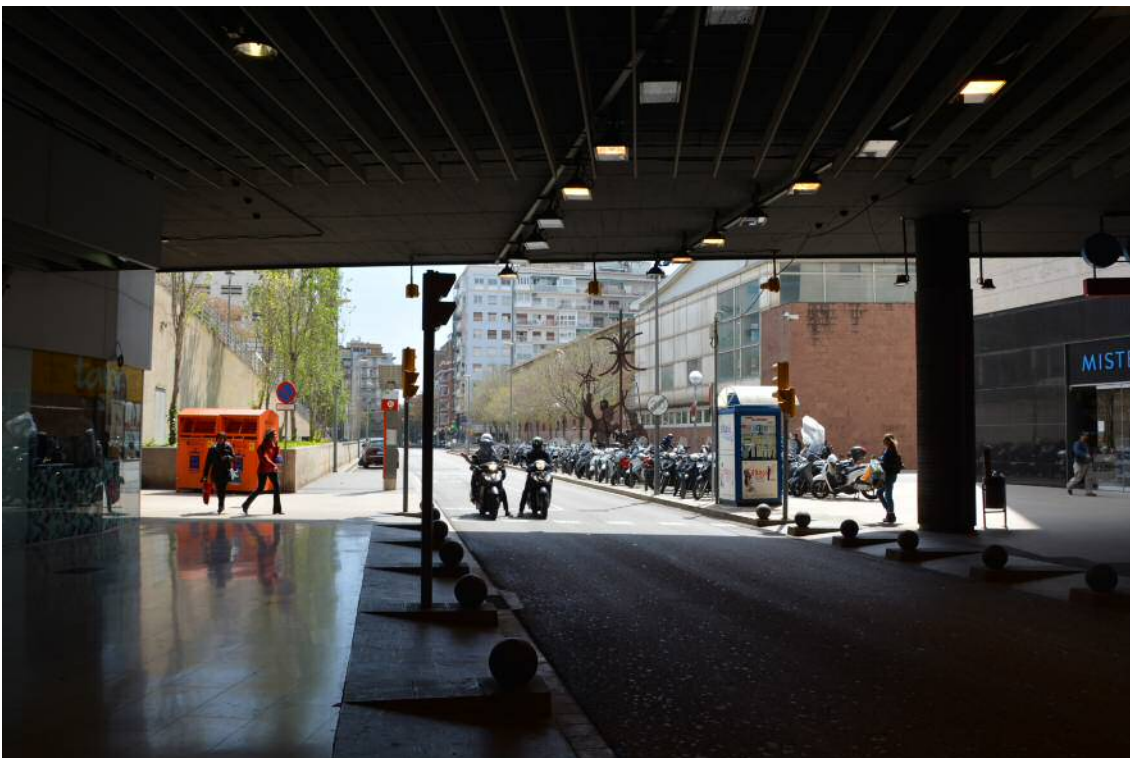
From outside, *L’Illa* appears to our pedestrian as an enormous austere mass. It seems simplistic and imposing. At first glance, from *Avinguda Diagonal*, *L’Illa* is composed of an upper body sitting on a dark heavy podium. The podium defines the public section of the building where retail and commercial outlets are concentrated. The podium is articulated to accommodate the linkages and create entrances. The upper body, placed on top of the podium, gives the impression of being a mass wrapped by a skin that folds when and where desired to create vertical recesses in accordance with the entrances. The skin wraps around the volume, creating an atrium at the end of the intersection between *Diagonal* and *Carrer Numància* where the outside defines an inside space. Obviously, the size of this building relates to the large scale with which it engages- the *Diagonal*. The section of *Diagonal* is substantial, and any low building would lack presence. The simple elevation, made up of a skin with repeated monotonous

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<sup>82</sup> In this case, some strategies are to treat the frontage to *Diagonal* with one building with a homogeneous façade, the spatial configuration of the land uses and the linkages. Some of the tactics deployed are the large measured size of the opening in *Diagonal*, the folds of the façade to deal with scale and change in height of the building and to continue the *Diagonal* pavement into part of *L’Illa*.



*Fig. 1.2.38*  
View of Carrer Déu i Mata, access to hotel.



*Fig. 1.2.39*  
Underground linkage crossing L'illa.

fenestration, is designed to be perceived in movement and to host its programme of offices and hotel indifferently. *L'illa* is not conceived like the typical commercial building, where the object is disassociated from its content and context. It can be argued that this building has a degree of disassociation, though in a different respect to the typical shopping centre.<sup>83</sup>

## Programme

The urban context has had a significant influence, not only on the composition of the superblock, but also on the design decisions behind the appearance of *L'illa*, from how to deal with the programme, to how to establish entrances and how to shape the exterior volume. All the accesses into the superblock and *L'illa*, except one, coincide with links derived from the existing immediate context. The programme has been organised using the analogy of stratification, where different uses are layered one on top of another. This stratification had to respond not just to the juxtaposition of compatible uses, but also to the different urban pressures affecting the way people engage with the programme and use this building.<sup>84</sup> The entrances to the hotel and offices are placed off the *Diagonal*. These are treated like infiltrations that expand only once they have reached the right level.<sup>85</sup> These two uses have allocated the minimal amount of space and volume on ground floor, just allowing access to the upper floors and geometrically are vertical in space and volume.<sup>86</sup> Once you reach their allocated levels, the infiltration expands and creates generous spaces and volumes, becoming a stratum.

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<sup>83</sup> Despite the fact of this development having the right land uses to create "non-place", it cannot be catalogued as one. Marc Augé defines non-place as a-relational, a-historical and disinterested with identity and it emerges from the opposition between place and space and this project emerges from relations with the wider context, builds on the history of the area and is concerned with identity. See Marc Augé, *Non-Places. An Introduction to Supermodernity*, 2nd edn. (London and Brooklyn, New York: Verso, 2008), pp.63-64.

<sup>84</sup> The superblock hosts a diversity of uses, bringing a diversity of users and rhythms. The high school attracts a mixture of teenagers who live near the area at specific times and days of the week and year. The market and supermarket attract a different profile of people. The market, which contains bars, is shared during the week with professionals working near *L'illa*, contrasting with Saturdays. The park attracts families with young children and *L'illa*, the shopping centre- offers a safe, controlled environment for teenagers. Therefore, the superblock endorses diversity of use, in turn encouraging a diversity of users to overcome the discontinuity between the diverse scales of the *Avinguda Diagonal* and the District, as Jacobs would recommend.

<sup>85</sup> Note that infiltration implies a direction from which the infiltration happens.

<sup>86</sup> The accesses to these uses is controlled; you need to be identified to be given access. These entrances are modest and blended with the podium in comparison to the main link-entrances to the public uses proposing a clear hierarchy between entrances. These are designed as traditional doorways (Unwin) and interfaces (Bobić), extending between the door as part of the façade to the entry to the office where the reception is placed at an upper level. These is an interface composed of a convoluted spatial configuration, helping the worker or visitor to move psychologically to the contrasting domain of the street (Stevens, Simon Unwin, Edward T. White).



Fig. 1.2.40  
Walking along *Diagonal*.



Fig. 1.2.41  
Reaching Linkage 1.

## Linkages Versus Entrances

The linkages crossing the superblock coincide with accesses to *L'illa*.<sup>87</sup> It has three accesses from *Diagonal*, one from *Carrer Numància*, which intersects with an access from *Diagonal*, and two accesses from *Carrer de Déu i Mata* of which one intersects with an access from *Diagonal*. One of them is at an underground level in relation to *Diagonal* through *Carrer Constaça* called *Tunel Olla Diagonal* and the second access is through the link between the hotel and the conference centre. All the linkages are composed of a sequence of spaces,<sup>88</sup> establishing a smooth transition from the large - city- scale, to the small - residential- scale and are open throughout the day and night. The public uses of *L'illa* are accessed from these linkages. It is difficult to define where the entrance to *L'illa* starts and where the linkages finish. The podium, and also in some cases the skin, have been affected by these perforations, making it clear that the urban scale has prevailed over the building scale. All the entrances are slightly different due to the specific urban context, the programme, and to provide hierarchy. All the linkages are perpendicular to the building, except the one from *Carrer Numància* that has inherited its direction from *Carrer Anglesola*.<sup>89</sup> The inner circulation space (the arcade) which provides access to all stores/shops at all levels is more or less parallel to the *Diagonal* and perpendicular to the linkages.

The programme, as in the superblock, has been intelligently used to reinforce the linkages thus attracting citizens and residents and creating the pressures mentioned previously. An example of this is the *Tunel Olla Diagonal*, an underground level linkage in relation to the *Diagonal* and a street at the district side. Where this linkage penetrates the building, there is a market on one side and a supermarket on the other. A second link from *Carrer de Déu i Mata* placed between the hotel and conference centre intersects with the open space. Again, this is visually clear and a well-used space in a high density residential area. The double linkage from *Diagonal* to *Carrer Numància* which crosses the atrium does not have a door to define the inside space from the outside, or to define the shift from public space to private space in terms of property and use. The other two linkages have transparent sliding glass doors, but already well inside *L'illa*, leading

<sup>87</sup> William Whyte talked about the wall that delineates the "private" square from the street and serves as a bench for the watchers, or the window that allows light to the inside and views to the outside, but it may provide a view from outside to inside the building. Thus, these liminal elements benefit from undertaking more than one role. This applies to the linkages that are paths crossing the building, linking surrounding streets and the building with the surroundings, and these are also the entrances to the building.

<sup>88</sup> Cullen's term "sequence of spaces", directly related to the kinetic experiences of the built environment, is selected due to the close nature of the description. Nonetheless, the term spatial configurations as deployed by Bobić in relation to his morphological studies of the interface also applies.

<sup>89</sup> The linkages, and paths for Whyte as these, to great extent are continuations of the streets which cross the private domain, aiming for continuity through a high degree of porosity (term used by Cooper Marcus and Francis in relation to transition).



Fig. 1.2.42  
Facing Linkage 1.



Fig. 1.2.43  
Entering Linkage 1.

to the inner circulation area (arcade), with the inner façade visible from the public domain. The openings are at least two storeys high to make both physical and visual connections. Therefore, it seems that the arcade has a clear boundary when approaching from the arcade to the outside, although it is challenging to identify the line or strip defining the entrance/s and therefore the boundary of the superblock. The façade somehow defines the boundary, but due to its size, it relates to a larger scale and the pavement blurs it as the inner pavement extends into the street or vice versa. Consequently, it is even difficult to establish where the boundaries between private and public exist.

### Linkage 1

The first linkage to be analysed connects the *Diagonal* to *Carrer Déu i Mata*. The direction of this linkage is defined by the *Diagonal*; it is perpendicular to it. The position of this linkage is defined by the district starting where *Carrer Prat d'en Rull* finishes and intersects with *Carrer de Déu i Mata*. It connects the grand avenue to the district and the mixed-use neighbourhood. This linkage establishes a gradation from one scale to another, from one land use to another, from a place for the citizen to a place for the resident, the neighbour.<sup>90</sup> Starting from *Diagonal*, first of all it crosses *L'Illa*, then intersects with the inner public open space, afterwards it channels into the space between the hotel and the Conference Centre reaching *Carrer de Déu i Mata*. Thus, the linkage crosses different public spaces with different natures blending different scales.

The pedestrian enters *L'Illa* from *Diagonal* through a wide opening which is part of the heavy dark podium. The opening is interrupted by a large double column displaying where the skin folds and where the façade is recessed in relation to the initial alignment. On one hand, this strong gesture lends more importance to the folding of the façade, as this relates more to the large scale than it does to the act of entering. On the other hand, the double column, from where one can measure the recess, signifies the act of entering by ensuring that the pedestrian is aware of the very act of crossing the façade. She crosses the line where the column sits and the recessed façade line, just behind the column. Has she entered *L'Illa* yet? Does she feel as if she is inside? She has not opened a door defining the inside from the outside. However, she is protected from the sun and rain. Furthermore, she can feel a few degrees of difference in temperature in relation to the open air behind her. From this point, and even before stepping through the façade, she had glimpses of daylight in the distance. As she progresses further the linkage compresses, changing its width but staying constant in terms of height. This spatial

<sup>90</sup> These are tactics deployed to engage with multiple diversity (Jacobs) to overcome the discontinuity in different levels between the *Diagonal*, city scale and the district, medium-small scale.





Fig. 1.2.44  
Crossing Linkage 1.

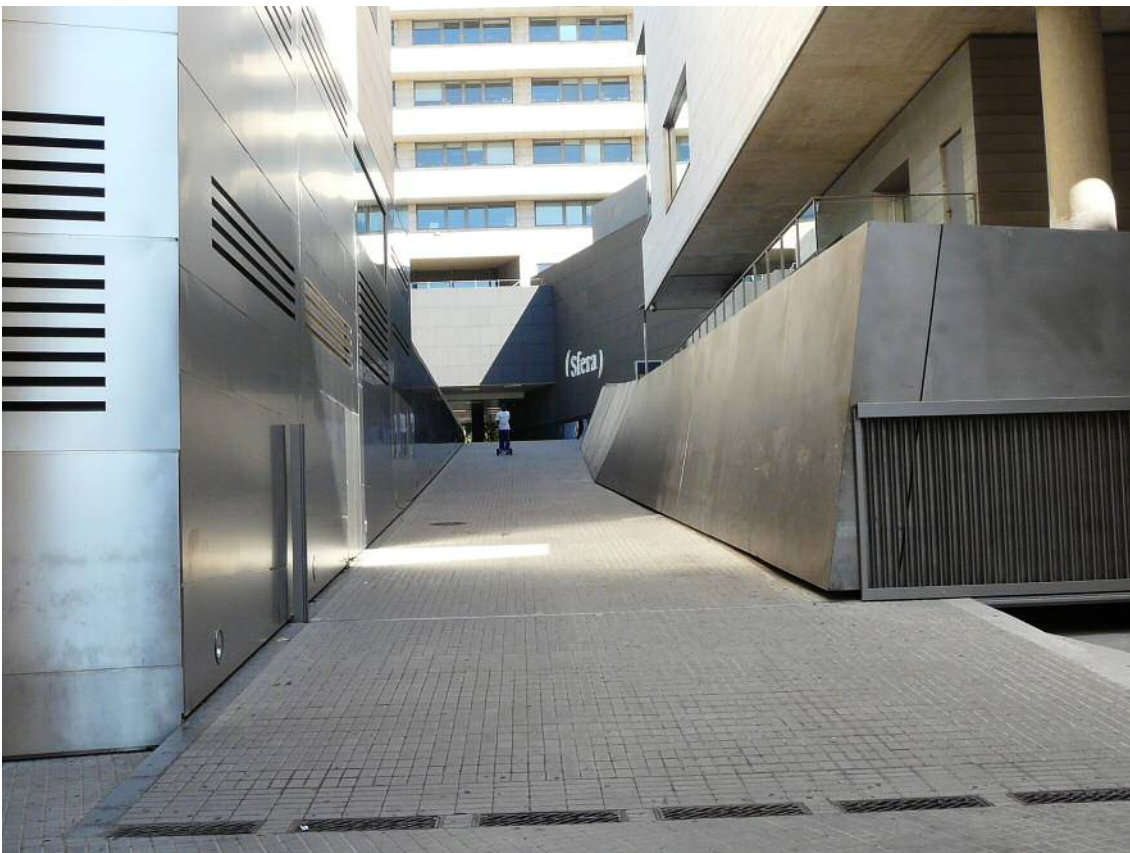


Fig. 1.2.45  
Looking back once Carrer Déu i Mata is reached.

change creates a dynamic space in which she becomes aware of the sides; the walls. On the left, there is a big anchor store and on the right the access to the internal commercial arcade via retractable transparent doors, providing access to the controlled interior arcade. Through the glazed walls, she experiences long views and she can view the disassociated inner world from the outside. She has different perceptions of depth from the outside to the inside. Is this the official entrance? Or, is she not in yet? Does she need to cross the retractable doors to feel inside, or is the experience of seeing the inside and being undercover enough to be inside? Continuing straight on her journey, the penetration compresses further, reducing not just in terms of width, but also now in height. There is a pinch point, and after this, the penetration opens up again to the sky. From this point, before leaving *L'illa*, she perceives where the linkage is heading; somehow the district, the residential area is announced. In the distance, a residential building is framed by a floating cube (the Conference Centre) to the left and by a lineal block (the hotel) to the right. So, is this compressible and expandable space the overture to *L'illa*? Anyhow, is she only a few steps away from being under the sky again, is she at the limit of *L'illa*, has she entered before and now is she leaving *L'illa*? The penetration opens up to the open inner space (the park) to the right and to the left is protected by a dark heavy wall. This is a reminder of the heavy dark podium of the *Diagonal* façade, and at this point she turns around to look back towards the *Diagonal*, trying to understand where she is. Furthermore, it is revealed that the height of this penetration is within the podium and much lower than the penetration on the *Diagonal* experienced at the beginning of this journey. The opening may be narrower and much smaller in height than the opening in *Diagonal*, though the podium has gained height, now reaching three storeys. Thus, the podium establishes the middle scale that was not existent in *Diagonal* from which the pedestrian can measure the different parts of this project and which become the element of reference. At this point, she realises she is in an inner space, controlled, safe and yet not completely public. This back elevation has a resemblance to the façade on *Diagonal*, attributable to the use of materials but with a different composition. *L'illa* already feels far back: It feels as if there is a considerable distance between the pedestrian and *L'illa*. Perhaps, it is due to a low glass box (replacing the podium) sticking out at low level mediating “between” the pedestrian and *L'illa*. The scale of this space is completely different to the one in *Diagonal* due to its size, but also to how spaces are created within the main space, with elements that relate more to the human scale. The pedestrian can identify the background and a few middle grounds as well as the foreground.

Once the linkage has intersected the inner public space, it loses its clarity and its spatiality, as it is opened to the sky and has wide open sides. Nevertheless, the sides at low level are



Fig. 1.2.46  
Reaching Linkage 2.



Fig. 1.2.47  
Facing Linkage 2.

formalised to make the linkage safe while dealing with the gradual but constant change of level to meet *Carrer de Déu i Mata*. This formalization affects the perception at low level and makes the linkage clearer but does not interrupt with the open long views, juxtaposing the “here” and “there”.

## Linkage 2

This is the middle link connecting *Diagonal* to the inner open space (park). This is the only linkage which does not connect *L'illa* directly with the district. This linkage is perpendicular to the *Diagonal* and sits about two thirds of the length of the superblock beyond *Carrer Numància*. *L'illa* folds vertically where the mass changes in height, affecting the composition and geometry of the upper openings. The folds start from the corners and are set-back from that point. The height of *L'illa* decreases from *Carrer Pau Romeva* in accordance with the set-backs and folds (vertical recesses) until the block reaches the second linkage. At this point, the mass of *L'illa* increases as vertical recesses make the building step forward, reaching its highest point at the intersection with *Carrer Numància* on the same alignment as the other corner at *Carrer Pau Romeva*. The rise and fall of the mass contributes to the skyline of the *Diagonal*, the city and also the skyline of the building experienced by the pedestrian when walking along it.<sup>91</sup>

The linkage is positioned where the façade of *L'illa* reaches its lowest height and it is set back to its maximum point. At this point, the pedestrian finds a large rectangular opening, wider than it is tall. The linkage has penetrated not just the podium but also the upper body. The linkage quickly compresses its width to the left where the hotel is located. This is followed by a much more noticeable compression to the right, caused by an entrance to an independent retail unit at first floor. The opening also changes in height due to an elevated glazed corridor that crosses at a higher level behind the compression. A further compression is visible from the right followed by the daylight in the very near distance.<sup>92</sup>

<sup>91</sup> The façade of *L'illa*, like the façade of the block presented in the previous case study, links the sky and the floor where she walks. The rim of this façade is imposing due to its length. Nonetheless, the folds, set-backs and changes in height according to these two are coordinated and designed to assist the pedestrian relating to the sky and the façade as a whole, as a mediator between scales and two primary elements in our experiential existence. The folds and the set-backs reach the floor where she walks and these are of dimensions based on the material of the façade and also relate to the human body.

<sup>92</sup> This entrance has a complex spatial configuration made up of a juxtaposition of configurations where the pedestrian moves through them seamlessly. It applies the principle of “transitions” announced by Cooper Marcus and Francis. In this case, it seeks to link the busy, noisy, impersonal and grand *Diagonal* to another two domains: the arcade-shopping centre space for consumerism and the inner open public space providing a quiet, social and friendly space for all users and ages. This entrance-interface (Bobić)- is a physical link that provides choice and psychologically prepares the user.



*Fig. 1.2.48*  
Crossing Linkage 2.



*Fig. 1.2.49*  
Arriving at the inner open space.

Standing in front of this opening, the pedestrian experiences a framed view. She discerns the compressions helping to formalise three layers of depth on this penetration: foreground (façade, awareness of going through), middle ground (glazed corridor above) and background (daylight). Moving through, she is attracted by the retractable transparent glass doors to the left visible from *Diagonal*. As she advances, she is surprised by the expansion that follows the compression to the right, discovering another set of retractable doors similar to the ones she already saw to the left. The expansion is created by a wall inclined in plan inviting her to follow it. This entrance is limited by this inclined wall and opposite from a shop-front perceived as a compression from *Diagonal* which, at this point, becomes a limit to the space to formalise the preamble to the arcade. Once she reaches this space and faces the retractable doors, she turns 180 degrees from where she appreciates the relative position in relation to the point of departure; the *Diagonal*. Now, she realises that she is in line with the arcade and the linkage is intersecting it. In addition, the elevated glazed corridor has a direct relationship with the arcade and reveals some of the activity from the arcade to the outside. Is the space just limited by the shop-front and inclined wall? Is this space the entrance? Is the real entrance where she crossed the façade? Where can she say that she has arrived? Returning to the centre of the linkage, she appreciates that it compresses again to its narrowest point, but spatially is not felt. At each side there are stairs and an opening providing ventilation to the floors below. Crossing the edge of the rear façade, she is exposed to the sky but both sides are bounded by the glass rear box defining the commercial section of *L'illa* and this guides her to the open inner space. In between this space and the inner open space there is a strip of services which determines the way she moves but it does not interfere.

She has entered the park, the inner public space; thus, left behind *L'illa*. The inner public space from this point is perceived as an enclosed space by the buildings that compose the superblock. This time the park is read as a destination point, with a foreground, middle ground and background in all directions, even behind her, from the park to the *Diagonal*.

### **Linkage 3**

This linkage is close to the intersection between the *Diagonal* and *Carrer Numància*. This is the most intense part of this block reflecting the complex urban situation that has been revealed in the formalisation of the volume, program and connections at all different levels. As mentioned earlier, one of the requirements was to reinstate *Carrer Anglessola* and *Carrer*



*Fig. 1.2.50*  
View of L'illa and Linkage 3 from the opposite pavement.



*Fig. 1.2.51*  
Reaching Linkage 3.

*Constança*. The continuation of *Carrer Anglessola* through *L'illa* links *Carrer Numància* with *Diagonal* crossing the atrium. *Carrer Constança* links *Carrer de Déu i Mata* crossing *L'illa* and *Diagonal* at the underground level until it reaches *Avinguda Sarrià*. As the linkage *Carrer Constança* reaches *L'illa*, it splits into two to carry on underground and duplicate at ground level crossing the atrium. It links indirectly the inner open space and intersects with the linkage of the continuation of *Carrer Anglessola* when meeting the *Diagonal*. Hence, this is a double or even triple linkage responding and integrating with the immediate urban context.

Arriving from *Diagonal*, approaching from *Carrer Entrança* and moving towards *Carrer Numància*, the pedestrian can see into *L'illa* through a low wide cut. This opening is part of the podium, it does not extend beyond it in contrast with the other linkages. This time she does not have a glimpse of daylight from the other side of *L'illa*. Moving forwards along *Diagonal*, she realises that there is a second way into *L'illa* revealing that this linkage is divided in two by a triangular glass box with its vertex just a few meters inside the line of the façade. Moving into *L'illa*, through the façade, she moves into a flowing space of a very different scale to the *Diagonal*. The change of scale is noticeable because of the height and width of these linkages. Both linkages have the same height, similar width and shop-fronts with entrances that define each side like the inner arcade. Is she inside yet? Has she crossed the entrance? If she turns around to look back she feels she is protected, in an inner space. Yet she has neither crossed a door nor has the pavement changed.<sup>93</sup> Both linkages flow into the generous atrium. This inside space is defined by the same materials used on the outside façade. She is once more reminded about the two parts of *L'illa*-the dark podium and upper light body.

On the outside, the podium is clad with large black stone units and the skin of the upper body is constituted of light stone units, which are the same width and half the height of the stone that makes the podium. Hence, there is a relationship between the podium and upper body. The size of cladding relates to the use behind, but also reflects the scale it represents. The podium defines the more public part of *L'illa*, including its commercial uses, areas open to the public. The upper floors accommodate a hotel relating to residential and office uses which, are open

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<sup>93</sup> The street pavement is carried through the linkages that cross *L'illa*. The only difference is that at some points (not clear) the pavement is polished for different reasons. Firstly, a polished floor is used for inside and nobler spaces. Secondly, this minor gesture gives away that the linkages, when crossing *L'illa*, are not public but private; in terms of management and surveillance and thus carry all the associated connotations. On the contrary, the continuity of the pavement crossing the line of the façade intends to blur the outside with the inside attracting the pedestrian in. In Lynch's words, the perforations are fragments, part of the boundary that attract contrasting with the rest proposing a clear separation between the two sides of it. Thus, this boundary sometimes is a seam and others a barrier; sometimes harmonises tensions and others celebrate the differences (Alexander et. al.).





Fig. 1.2.52  
Entering Linkage 3.



Fig. 1.2.53  
Linkage 3 meets the internal atrium.

to specific people. Once she reaches the atrium, she is prompted to look up because of the contrast in height in relation to the linkages from *Diagonal* but also because of the light coming from above. The atrium is covered with a light structure and the greater part of it is glazed ensuring visual continuity between the inside and outside. Has she arrived? She feels as though she has arrived. She has arrived in an animated space where air, light and escalators have exploded and sections, linkages and flows of people are juxtaposed. It is a space for gathering, exhibitions and shows.

Having reached this point, and after contemplating the atrium, it is time to decide where to go next. She can move upstairs though she can already observe from her location what is happening there.<sup>94</sup> On the left, again there are retractable transparent glass doors to access the arcade parallel to the *Diagonal*. If she positions herself where the *Diagonal* linkage number two meets the atrium she sees that this linkage continues. From the atrium from certain locations, at a distance, she sees daylight and this linkage slopes down to meet *Carrer Numància*. Both sides of the linkage are well defined with shop-fronts. She reaches a point where she only looks ahead at the daylight beyond *L'illa* ignoring the shops at each side. This is because of the daylight at the end framed by the entrance and reinforced by the slope of the floor and the constant height of the ceiling making this linkage dynamic and directional.

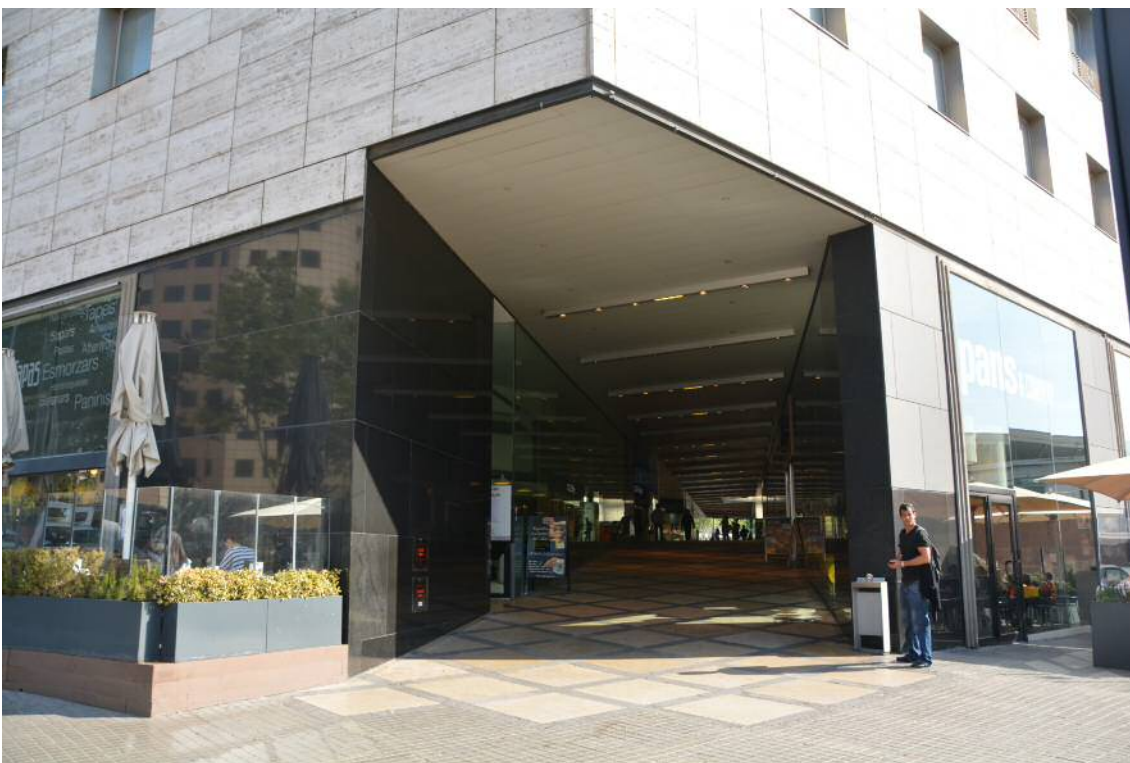
## Summary

This case study describes the entrances to the public building *L'illa* in reference to linkages and these entrances provide access to the “inside” of the building although they are positioned in such a way that they are also part of the urban street pattern.<sup>95</sup> Despite the detailed descriptions, it has not been possible to identify a definite line where two domains meet (inside-outside, public-private). Nonetheless an ill-defined strip is recognised. Analysing the descriptions of the linkages, we can identify a series of tactics used to design the entrances. Several of them are defined as a response to the wider context which seems to have transformed the entrances into linkages as per their location and size. The notion of entrance implies a way in, threshold,

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<sup>94</sup> This is an animated space to see and be seen in Whyte and Gehl's terms, despite of being indoor and private. She is in it. In this location she feels protected as she is located in relation to internal walls and she has an overview of the space. She is aware of her position in the inner space enjoying her short inner views as well as the long views to *Diagonal* but also to *Carrer Numància*. On the contrary, she feels exposed as there are people from above watching putting her in a vulnerable position.

<sup>95</sup> The linkage-entrances are multifunctional (Lynch) and this element must fulfil the role and acquire the associated meaning for both. It allows transit, connects providing continuity. It also acts as a threshold facilitating the union and separation between something and something else in physical and psychological terms (Stevens, Unwin, White).



*Fig. 1.2.54*  
Looking back to Linkage 3 after reaching *Càrrer de Numancia*.

door, gate and it is typically formalised by a place, a moment to pause within the journey. In contrast, a linkage implies movement and is associated with dynamic spaces. Therefore, the linkages/entrances are designed to comply with these two requirements, resulting in a combination of spaces that compress and expand. This applies to all the linkages, though in some sections, the notion of linkage prevails over that of entrance or vice versa, depending on their position in relation to the building and wider context. Some authors may identify this as transition through a gradation of spaces.

The term “transitional scale” also applies to the linkage-entrance due to the movement from an urban situation to a private domain into a collective domain and back to a truly public one, the street part of the district.<sup>96</sup> Therefore, the sense of scale<sup>97</sup> of the linkage gradually changes from one section to another to relate to the inhabitant, building, immediate context and city. Moving through the façade of the building is a constant in all the cases but this act does not define the inside-outside or public-private boundaries. The linkage-entrances have been tailored to transcend the role of the building within its context, the perception from the car and by the pedestrian. The portals of the entrances have been designed relative to the size of the building<sup>98</sup> and to relate to the pedestrian. The linkages intersecting the building are determined by the immediate streets and designed by the inner open space part of the building and the inhabitant.

In this case study, the term transition refers to an “in-between” space, scales, realities and/or situations. Transition relates to the “liminal” also experienced in the threshold and the act of entering and crossing the doorway or doorstep marking neither the “here” nor “there”, but in this case it is more about being “here” and “there”.<sup>99</sup> The descriptions of the linkages often referred to the space that the pedestrian was in and, simultaneously to what could be seen and what was defined by the background. The foreground and background were present and

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<sup>96</sup> This project reveals that some tactics are implemented to relate elements (or an element and a user) that otherwise work at one scale mainly due to their size and associated meaning. This applies to the folds of the façade that articulates the rim of the façade and façade to the pedestrian. The linkage-entrances juxtapose several techniques presented in the descriptions to articulate and relate the three domains.

<sup>97</sup> The sense of scale refers to how we experience it, to how we feel it.

<sup>98</sup> The size of the building is determined by the length of the site and it was strategically decided this way to have a presence on the *Avenida Diagonal*; to be able to relate and take part in the scale of the grand city avenue. The portals are sized in relation to and relate to two different scales: the building and the pedestrian. Thus, the size of something is relative to something else and from that the consideration of scale can be defined. Charles Moore and Gerald Allen in their book *Dimensions. Space, Shape and Scale in Architecture* (New York: Architectural Record, 1976), dedicate a chapter to ‘Scale’ presenting the distinction to size and introducing the term relative (p.18).

<sup>99</sup> It refers to a limit that exists, in the sense that she has moved from one place to another, from one situation to another but it is challenging to point out where. This is the antithesis to the typical threshold, where the inside meets the outside and a door can be opened (Stevens).



*Fig. 1.2.55*  
Comparitive (same scale) aerial views of *L'illa Diagonal* (top) and *Jardins de Lina Òdena* (bottom).

interrelated in the same intrinsic manner as the “here” and “there” of Cullen. The background changed at critical moments in relation to the foreground as she moved position. The background provides contrast and brings the reality to the foreground. The background changes as she moves through: from *Diagonal* the background is the façade of the *L’Illa*, once she moves through it, a light in the distance is the background flooding the collective open space and then the residential buildings far away. The horizon is placed in the perceived background, helping to define the near-by but the close boundaries have been removed. Even the most basic element, the door, has been positioned and designed so that it does not compromise the continuity. The door is never in the background, behind where her destination lies.

It seems that the above tactics and notions aim to generate continuity: continuity of space within the building (small scale), continuity within the street pattern (connections, medium scale) and the urban fabric (massing, large scale). Thus, this building does not have boundaries that can be defined with a line, in a conventional way. Rather, strips can be identified where liminal subjects occur and where a horizon defines the beginning of stages. The urban nature of this location and genesis of the building have encouraged and allowed this approach.

### **Experiencing Limits at *Jardins de Lina Òdena* and *L’Illa Diagonal***

The two case studies are different in relation to their programme, extent, dimensions and specific location within the city, but they are complementary. Both have been experienced through walking journeys. The descriptions have developed from these journeys and the identification of the limits and reflections upon the limit have supported some ideas of limit articulated by the urban design thinkers. Thus, the case studies and their places have been interpreted and understood from their experiential limits.

Particular languages of description have emerged here, out of my attempts at phenomenological description in relation to the foregoing accounts of the ideas of urban design thinkers. The use of the adverbs “here” and “there” have been applied in a similar way to how Cullen uses them, although “over there” has been added. It seems that these were less prevalent in *L’Illa Diagonal*. The “here” is not more important than the “there” or vice versa. These exchange places in terms of prevalence through time as they are directly related and determined by the dweller dwelling. The “here” and “there” are usually interrelated and in each specific place and moment one takes precedence over the other. However, where is the limit between the two? Is there a limit? In some cases the limit is clear, in others it can be identified only after exploration and in a good

number of cases there are elements limiting the “here” but these are also part of the “there”. And, how and when does the “here” become the “there” and vice versa? Is there a crucial moment or is that transition just spatio-temporal? Based on the first case-study, it takes part of the unfolding of the views as we move our bodies or just our heads. It happens quickly and it is part of a continuum of experiential views.

“Here” and “there”, in experience, can thus be characterised beyond dichotomy; they work more as a triangulation. They only exist through the dweller defining the “here” and the “there”, in relation to the dweller and then between them. Therefore, they come alive when these are experienced by somebody and the relative position of the dweller is crucial as there are as many “heres” and “theres” as positions. Distances determine our experiences and what we experience, as it is down to what we can see and how much of the “what” we can see, as Edward T. Hall and Gehl state.<sup>100</sup> In this study, the adverbs “here” and “there” have been associated with the foreground, middle ground and background. These are terms borrowed from painting and landscape and have associations with the degree of how much we can see and also the relative position of the dweller dwelling.

In some cases, the pronouns “this” and “that” already deployed by Cullen are used to refer to specificities and tangible “heres” and “theres”. The pedestrian's experience is based on the unfolding and juxtaposition of different views,<sup>101</sup> focussed and close-up views as opposed to, or along with long and wide views. In most cases, the pedestrian experiences fragmented views and unlimited focused views in contrast with panoptic views.

In the first case study of *Jardins de Lina Òdena*, a distinction and relation has been established between the different types of perspectives that define our experience, and these relate to the terms mentioned above. There is no specific pattern as to how and when the types of perspective take place but the predominant type is determined by the space and its limits and also by the beholder of the view.

The two previous case studies highlight that there is not just one limit but many limits. A limit can play different roles simultaneously, but its roles change as it takes a different position

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<sup>100</sup> Edward T. Hall, *The Hidden Dimension* (New York: Bantam Doubleday Dell Publishing Group, Inc., 1990), pp.114-129. Jan Gehl, *Cities for People* (Washington, Covelo, London: Island Press, 2010), pp.33-54.

<sup>101</sup> Here the words *unfoldment* and *juxtaposition* are deployed simultaneously as the first one refers to the views being experienced one after another; space in time, while juxtaposition refers to the repetition of elements in different views. These sometimes keep the position and others shift to another position within the composition and structure of the view.

in a different view. Thus, on the one hand, the limit takes place when two things come into contact or intersect, indicating that this is static. On the other hand, the limit transforms as it is experienced, and this takes place in space and time and through unfolding views and multiple locations within a place. The limit is relative.

A priori, limits separate from “the other” making a distinction but then they disclose a desire to join or connect.<sup>102</sup> Thus, this desire is associated with confronting or reconciling differences that are usually manifested in the spatial configuration of the limit.<sup>103</sup> The different layers or elements constituting the limit reflect the tensions and negotiations from each side of the limit. These may be different on each side and these may change along the limit, adapting to new internal or external agents.<sup>104</sup> These may also be experienced differently from each side; from one side the limit can be more forgiving, welcoming and with a high degree of connectivity while from the other side it may be more reserved and will reveal the attribute of separating.<sup>105</sup> In this case, the limit acts like a membrane.<sup>106</sup> In some cases, these two attitudes, depending on directionality, may be due to the position of the inhabitant in relation to the limit, instead of the limit's spatial configuration.<sup>107</sup>

The next sub-chapter presents the limits of the landscape study deploying the same method that was applied to the urban case studies. The descriptions emerged from the written-experience, based on a reflection on the lived-experiences of the experiential limit of the case study in question, informed by the ideas articulated by the urban design thinkers that imply a written-experience.

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<sup>102</sup> Examples of these are the kerb, the wall defining the inner open space of the block, the building of *L'illa*. On one hand, they separate and delimit and on the other hand they transgress, link and relate. The transgression and linking can be visual or physical or both.

<sup>103</sup> An example of this limit is the edge of the kerb. It was manifested as a line delimiting and then, protecting. These made her to include several layers parallel at each side of the edge of the kerb to the limit extending it. However, when she wanted to cross to the other side of the street, the kerb was the element to allow her to save the change of level and the layers part of but before this limit announced and prepared her to this change of level. A similar experience applies to the façade.

<sup>104</sup> This is experienced with the façade and also with the linkage-entrances. In the façade, the negotiations and tensions vary along its length and it is about reaching a momentarily balance. The linkage-entrances of *L'illa* are limits that seek harmony, continuity and containment.

<sup>105</sup> This was the case of the entrances to the inner open space of the block and the linkage-entrances of *L'illa Diagonal* but presenting the contrary situation to previous one.

<sup>106</sup> This term deployed by different authors like Alexander et. al. and Richard Sennett implies selection and intelligence.

<sup>107</sup> This is the case of the limit of the inner open space of the block which is different for the visitor and the resident.





Fig. 1.2.56  
Map of the Island of Mallorca, *Cala Pi* highlighted in red.



Fig. 1.2.57  
Aerial view of *Cala Pi* and surroundings.

## 1.2.2 In Landscape

Having explored two urban case studies, where thresholds and limits have been consciously designed, this case study seeks to test ideas of limit in relation to less conspicuously human-designed limits in the landscape. This opens up the ideas of the urban design thinkers explored in relation to urban experiences, and the languages they used, to another kind of testing in a more complex environment.

### Mallorca Inlet: *Cala Pi*

*Cala Pi* is a coastal inlet (cove), a geological accident that interrupts the south-west cliff of *Mallorca* about 25 miles from the city of Palma. The inlet is part of a small narrow walled opening where the stream<sup>108</sup> *Torrent de Cala Pi* and sea meet. The *Torrent* and sea carved the Pliocene limestone forming the inlet and this is an *in-between* where the freshwater from the *Torrent* meets the seawater. The *Torrent Cala Pi* usually only flows when rain falls during the winter and autumn seasons, though this varies year by year. For example, in October 2013 and in the middle of August 2014 the *Torrent* was present in the inlet and during all of July and August 2015 and December 2016 it was absent for the last 150 meters from the sea. The inlet is classified within the planning system as an Area of Special Natural Interest (*Area Natural d'Especial Interès ANEI*), allowing for development but with tight restrictions. The inlet is the limit to a ribbon settlement placed to the south-east along the coastal line, with a few retail units beside the access to *Cala Pi*. This sits on a plateau between 30 to 50 meters higher than the base of the inlet. The ingress is through a narrow passage sculpted into the edge of the cliff, formed of shallow slopes and gentle steps and at times the views are framed by pines growing on the cliff and leaning over the passage.

The following sections are lead by the descriptions narrating the experiences and the reflections upon the limit of the inlet. These are presented in third person and use a female voice for the visitor as before.

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<sup>108</sup> The term *torrent* in Catalan translates as "stream", referring to a course of water that only runs when it rains enough to saturate the ground to form the stream. Thus, this only runs at certain times of the year.

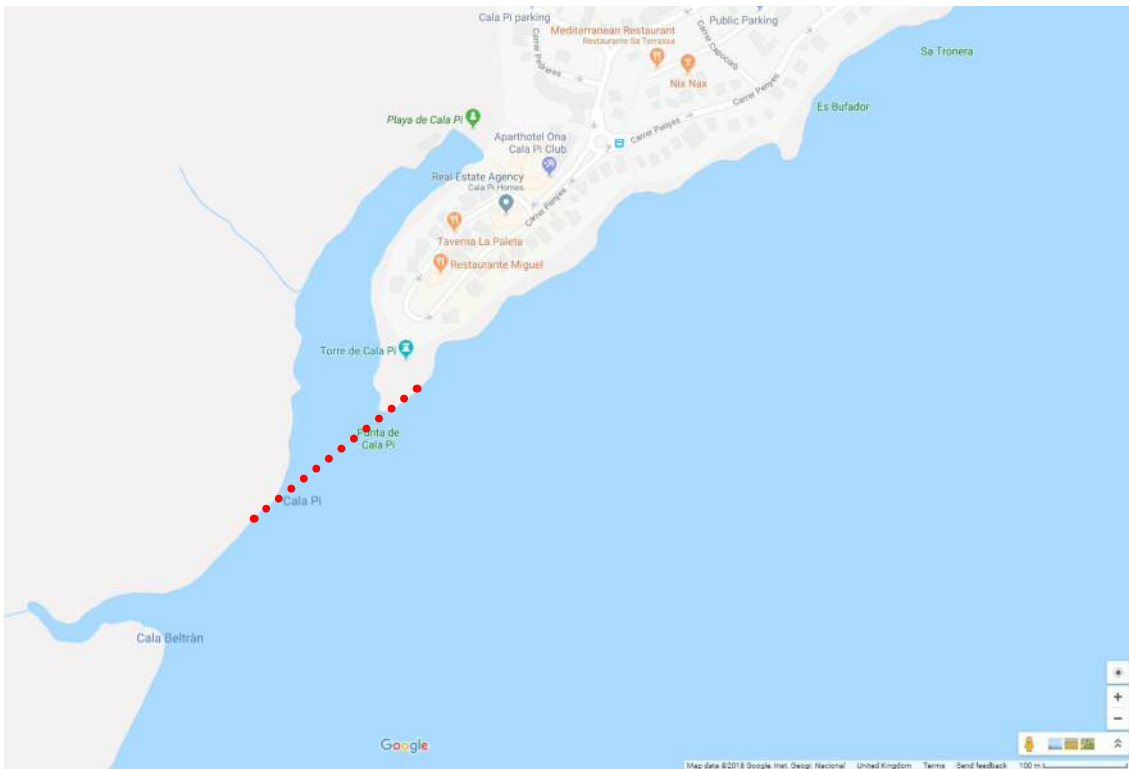


Fig. 1.2.58  
Map of the Island of Mallorca, Cala Pi highlighted in red.



Fig. 1.2.59  
View of the tower marking the inlet of Cala Pi.

## Experiencing Arrival

Here, the visitor appreciates the inlet as an identifiable entity, part of a bigger whole with a beginning and end. So, it is worth questioning where and how the beginning and end of the inlet are established and defined. The formal limit from the sea is simple as her eyes easily draw an imaginary line, linking the outer coastal lines but interrupted by the inlet. Consequently, she observes an outer coastal line defining the open sea and two inner coastal lines constituting the inlet. Thus, it reads as though the seawater has penetrated, eroding the rock forming the outer coastal line thus exposing the inner one, creating two sides.<sup>109</sup> The exposed inner rock over time has developed an outer patina in the same way that our skin reacts and protects itself from external agents by building itself a new limit. The external layer of the rock has oxidized to a stable condition, soil and sand have found appropriate holes and vegetation, with great effort, has colonised parts of them. The sea performs in a particular manner due to the morphology of the inlet. At the point of intersection of different types of waters in terms of densities, temperatures and undercurrents, particular types of fauna and flora have appeared that are visible on aerial views.<sup>110</sup> Over time, these areas maintain fine conditions and balance between them in order to host these unique fauna and flora. Thus, if the right conditions occur in terms of the extent to which fresh and salt water mix, depth of water, water properties among others, unique species (a third external element) will inhabit this in-between.<sup>111</sup>

Due to the orientation of the inlet the two sides of the valley receive different sun and wind exposure affecting the flora, fauna and rock formation. Subsequently, marginal differences between different parts take place due to these external variables.<sup>112</sup> The upper limit of the inlet is more difficult to establish as the *Torrent* moves smoothly from one area to another. Although, at around 150 meters from where the sea meets the sand, the *Torrent* stops in the high season and there is not notable debris in the middle of the inlet. Hence, this may be considered the beginning; defined by a strip that facilitates the gradation of the *Torrent* to the inlet.

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<sup>109</sup> It seems that the waves moving the water put pressure and tension on the rock leading the change and adaptation.

<sup>110</sup> The morphology has favoured and perhaps generated certain conditions supporting unique things and changes.

<sup>111</sup> This is similar to the urban in-between situations where temporary spaces are appropriated, or activities take place as the conditions are favourable and finely balanced. Gehl mentions about children colonising the edge and then they start playing. Bobić refers to the adaptation of the stoop.

<sup>112</sup> The activity and appropriation of the street is also determined by external agents. In summer, in hot climates shaded areas are colonised by bars with tables and chairs. In the park, shaded benches are in demand. The reverse will happen when it is cold, and people look for the sun and its warmth (Whyte).

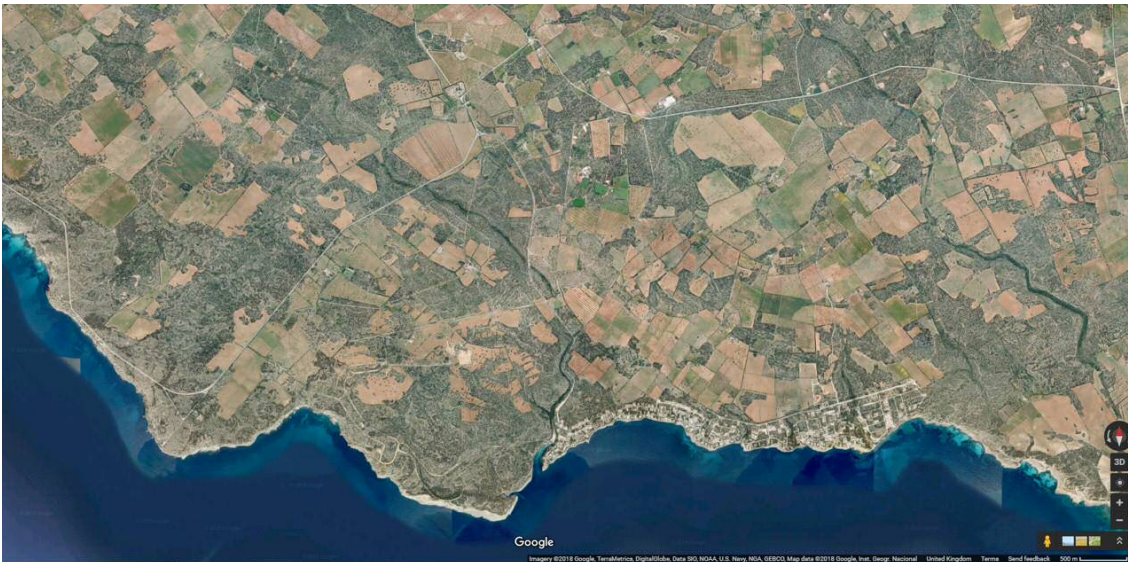


Fig. 1.2.60  
Extent of *Torrent Cala Pi*.



Fig. 1.2.61  
Close-up of the *Torrent Cala Pi*.

The inlet is considered an in-between itself and part of the liminal landscape thus the *Torrent Cala Pi* plays a significant role exposing the liminal conditions.<sup>113</sup> Careful episodes of the inlet have been observed and analysed reflecting upon liminal situations identifying diverse manifestations where borders, boundaries, edges and rims correlate with different variables, agents and parameters. These episodes will be analysed considering the substrata which are essential elements (rock, sand and water) and how the primary elements inhabit and modify the substrata like the vegetation and then the variable external elements or agents that affect the other two like the wind, sun, rain.

### **The *Torrent* in the Landscape**

In the aerial view and map, the journey of the *Torrent* is distinguished by starting in an apparent non-place<sup>114</sup> but ending in a memorable one, the inlet and ultimately in the sea. The *Torrent* is visible as the riverbed is associated with and nurtures the indigenous flora that is usually established at each side of the torrent reading as an in-between with a third distinguishable materiality. It reads like a thick band of green that slightly changes in terms of thickness throughout the journey, opening up until it divides in two when it reaches the inlet, defining the edges and leaving the central area “empty”.

The path of the riverbed is not accidental, as it is defined by the original topography reflecting its geo-morphological history, resulting in a specific formation. Where the water flows, this has imposed particular conditions- frequency and variable flow moderating the humidity of the local air and consequently the air temperature. Accordingly, this creates a liminal situation with internal stable parameters (topography, soil and sub-soil) correlating with a substratum supporting continuity against outside parameters (vegetation, water) and weather variables that create discontinuity, resulting in an in-between.<sup>115</sup> This in-between changes with the different seasons, responding to the weather variables (temperature, humidity, wind, rainfall). Much slower and less perceptible changes take place due to slow erosion of the substrata, manipulating the topography, exaggerating it and differentiating it more from the immediate surroundings. The dictionary definition for “*torrent*” refers to the strong flow of water, with no reference to the associated vegetation at either side. Therefore, the *Torrent* is an intermittent

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<sup>113</sup> Liminal based on the condition of the *torrent* that it is in transit aiming to reach its destination; the sea.

<sup>114</sup> Termed by Augé. Here “non-place” refers to a geographic unmarked place; with no name. It is just perhaps known by the locals who regularly visit the origin of the stream.

<sup>115</sup> It is an in-between or perhaps gap that shows a discontinuity as more of the same happen at each part. Nonetheless, this in-between is an entity itself; it looks different and it has particular visible conditions.



*Fig. 1.2.62*  
View from the headland out to sea.



*Fig. 1.2.63*  
Entrance to the beach, with the cliffs opposite.

element as it exists just when the water is running. Where the *Torrent* intersects the inlet, a subtle trail is left on the sand. However, a different situation takes place at the upper part of the torrent where this is associated with specific flora. As the *Torrent* traverses the landscape, it carves the substrata marking the valley deeper and slightly wider until finally creating the inlet just above sea level. At this point, in the inlet area, the water runs approximately in the middle of the inlet and the vegetation adopts a peripheral position along (in length and height) each side wall (cliff defining the space of the inlet). The inlet, a priori, seems to be a result of the forces of the sea penetrating the land, but it is the result of a combination of complex effects deriving from inland and sea.

The section is divided into three main parts correlating with the main substrata or elements in this place: rock, sand and water and each part describes limits or liminal situations directly related or defined by the main element.

### **Rock Limiting the Inlet**

The rock is permanent and is experienced in a variety of ways: being on it, opposite it, between it, on top of, at the edge of it, etc. Most people who visit *Cala Pi* start by visiting the viewpoint placed on the headland that announces one side of the inlet and which is celebrated by a watchtower dating from the 17<sup>th</sup> century, sited opposite to the car park. From this location, the visitor experiences the immensity of the sea, with the horizon as a far limit contrasting with the nearby limit of the rocks she stands on. The horizon is a limit that she visually experiences but cannot reach, let alone touch. It accompanies her, it moves as she moves. It is relative to her position and always at eye level. As she moves through a place, she re-reads and re-interprets it in relation to this limit. She walks on the rock and stops where she reaches the edge of the cliff, at the visual point where the rock and the immense sea meet, experiencing an absolute limit in contrast with the co-existing limit of the horizon far away. She is placed at the edge of and opposite to the ultimate limit. She imagines what there is beneath her feet; the sea. Even though she cannot see how the sea touches the rock she believes that something similar happens on her side to the opposite cliff. The walled rock presents shallow cavities and some of them are inhabited by vegetation like pine and juniper trees and these take a liminal situation, on the rock but at its edge and the air.<sup>116</sup> The trees keep very close to the edge of the

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<sup>116</sup> Is this similar to being positioned at the façade between the street and the building; not “here”, not “there”? This position, defined by complex variables, features and characteristics, encouraged Bobić to reflect upon urbanity, Stevens on the threshold, White on the idea of the portal, Aldo van Eyck and Unwin on the doorstep, Whyte on a very specific triangulation, Jacobs defined a strip along the façade and Alexander et. al. dedicated and correlated specific patterns on the aspect.





*Fig. 1.2.64*  
Entrance to the beach, with the cliffs opposite.



*Fig. 1.2.66*  
Entrance to the beach, with the cliffs opposite.



*Fig. 1.2.65*  
Entrance to the beach, with the cliffs opposite.

rock, mainly in the superficial area of the soil, growing in some cases nearly parallel to the rock revealing the prevailing south-west winds that have shaped them by bending their trunks. Here she questions if the air is unlimited and infinite; she knows where it starts, it is an isotropic and completely malleable element that penetrates any gaps within and between the rock, sand or even water.

### **Ingress Along the Rock**

The access to the inlet is from the north-east side and between two properties (residential unit and hotel) to the southern edge of the settlement, through a stone paved path with low stone walls finished off with manicured bushes placed just behind and above the wall and pine trees providing patches of shade along the path, contrasting with the street. The background is defined by a faraway cliff, colonised with different greens and browns giving away that she is in a high position in relation to her destination, the inlet. She advances, becoming part of the path, the foreground. She has left the pine trees that celebrated the entrance and once more she is exposed to the sun and landscape. She can see stairs in the middle ground going down opposite to the constant background, the cliff. Now, its magnificence is revealed as well as showing how much further down she needs to go to reach the inlet. Once she takes the steps, she reaches a small platform from which to contemplate the inlet that articulates the path. At this point, she turns 90 degrees north, taking a parallel position in relation to the rock and becoming aware of moving along the rock. She feels in the in-between, in the articulation between two paths that belongs to both in equal measure and they share the imposing background.<sup>117</sup>

Each section of the path has a different character. The new path narrows down considerably in relation to the first section, moving from an exposed path to a more introverted one with vegetation creating partial and framed views of the inland zone.<sup>118</sup> It feels as if this is the middle ground, between the manmade path- the foreground- and the far away background, the element of reference. The paths relate differently to the context. The first section traverses the foreground and relates perpendicularly to the background, the cliff, at the opposite side. In the second section it moves along the cliff inhabiting the edge and establishes mainly lateral

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<sup>117</sup> Alexander et. al. believed that the boundary could harmonise bringing things together instead of exacerbating differences. This is a limit, understood as an in-between, like the linkage-entrances of *L'illa* in the sense that both seek to create continuity, harmonizing the two elements that links. This in-between linking to parts of the path including a change of direction may also mark the entry.

<sup>118</sup> The vegetation here acts as a physical element that frames but it also has a psychological effect, as it makes the inhabitant feel protected from the difference in height. Cooper Marcus and Francis presented the significance and potential of using vegetation for these effects, especially when designing spaces for children and the elderly. Ford also comments on the role of trees as a way of delineating for this purpose.

*Fig. 1.2.67*  
Moving down the stairs towards the beach.



*Fig. 1.2.68*  
Looking back to the sea from the steps.



*Fig. 1.2.69*  
East wall of inlet.

relations with the background and secondary perpendicular relations.<sup>119</sup>

As the visitor moves down towards the beach, the materiality defining the “this”-the path-mutates from manmade stone covering three sides to “that”, to two sides in the middle section to just one side in the third section. In the first place, the manmade stone is replaced by natural rock exposing the substrata of the foreground; the “this”. In the last section, the opposite lateral to the rock is replaced by two trunks vanishing into the side. The middle and longer sections of the path, starting with the articulation, are flanked on both sides by vegetation that provides shadows, as well as allowing some sunlight through. The views are towards the inland zone, but at some points she stops and looks back to see the sea to assure herself that there is a beach. She gradually moves down along the long but shallow steps, reaching a landing that articulates the last short portion of the path with another turning. At this point the stairs open up a little bit more. This time she faces the sea, which thus becomes the new background (but acknowledging the *Torrent* if this is there), separated by sand that taking a prominent middle ground. She continues descending with her eyes fixed on the sea. She feels she has arrived; one of her feet landed on the fine and very warm sand.

### Rock and Vegetation

She walks around familiarising herself with the inlet and looks back to where she came from. Segments of the path are visible between the vegetation contrasting with the natural elements. The path reads as a second nature as it is made of natural manipulated elements to fulfil a purpose, integrating well with the natural elements that have not been modified.<sup>120</sup>

The monotonous cliffs present slight differences, each with a different character. This is probably due to the different orientation with different exposure to the winds and sun each presenting slightly different rock formations. The northeast cliff opposite to the entrance is quite homogeneous along its length, with controlled vegetation along the vertical wall. Closer observation reveals some discrete insertions, like an engraved stair in the rock and manmade walls revealed through the presence of geometrically shaped windows. This wall linking two edges of the cliff conceals an inside, making a habitable cavity. This situation capturing an in-between also takes place in the south-east cliff but in a more noticeable manner near to the sea, where boats are kept and stairs provide access to the water. These cavities are shallow caves,

<sup>119</sup> This is familiar to the spatial configuration of the stoop, analysed in detail by Bobić, as the in-between the building and the street where the citizen and resident meet but also the person mutates between both.

<sup>120</sup> Iñaki Ábalos, *Atlas Pintoresco. Vol.1: El Observatorio* (Barcelona: Gustavo Gili, 2005), p.144.



*Fig. 1.2.70*  
Sea meeting land.



*Fig. 1.2.71*  
Band where rock and sea water meet.

but deep enough to host small boats. In some cases, walls have been added creating refuges. These cavities are linked to the sea through a sculptured stair in the rock, providing access to the sea linking two domains.<sup>121</sup> The wall is a divider creating a frontier to the sun, wind and creatures creating a sterile boundary.<sup>122</sup>

Zooming out, to place this event in the context of the whole cliff, it is noticeable that these caves exist within an internal order, a structure. It appears that the cliff is organised by three horizontal lines of cavities defining its composition. The first line correlates with a number of cavities near the sea, including the dark strip of rock that reveals the constant movement of the sea level and tides. Then, half way up the cliff, there is a second strip defined with cavities, and in some cases these cavities host vegetation colonizing an in-between with a new element. Finally, there is the top layer, formalised with a more or less horizontal line that is formed by the recess of the cliff and crowned with pine trees, the rim.<sup>123</sup> These mediate between what is behind –the urban realm- and nature acting as a filter, a transparent layer.

### **Rock and Sea Water**

The rock is the limit to the open sea. The water crashes into the rock over and over again, slowly modifying the coastal line. In the background, our visitor hears the water beating rhythmically against the rock and she sees a clear dark strip along the surface of the rock, registering the increase and decrease in the level of water due to the very modest Mediterranean sea tide<sup>124</sup> that influences the behaviour of the water, and also the fish and the fishing activity. At first it seems that little is happening between the two elements – the more or less vertical rock and horizontal water- though a closer examination reveals that this limit is productive and rich, hosting a good number of creatures and plants that inhabit the rock and receive nutrients from the water, air and sun. The rock itself acts as an inert substratum with imperceptible changes that hosts creatures in its holes, recesses and folds, disclosing in some way the nature of the rock (erosion creates holes, or some were created during its formation, later becoming

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<sup>121</sup> This link is similar to the one provided to link different domains at different levels taking us to the idea of the threshold (Stevens), portal (White), doorstep (van Eyck and Unwin).

<sup>122</sup> Then, it works, on one level (physical and territorial level based on Habraken's understanding) and in a simplistic way, as a membrane (Jacobs, Alexander, Stevens) in the sense that it allows for movement and linking in one direction and for a specific user, while it separates for others and prevents.

<sup>123</sup> This rim works in a similar way to the rim of the street, constituted by the edge of the street façade. The rim contains and helps to define the enclosure of the inlet. The street façade rim is firmer than this one. From some locations, the trees forming the rim are very close together forming a mass but from others the trees show what it is behind, and the rim is defined by the line below that contains and ends.

<sup>124</sup> Four tides per day of less than 0.5m and the intensity of the tide depends on the moon and the position of the Earth in relation to the sun. Therefore, it changes all the time and repeats every year.



*Fig. 1.2.72*  
Inland view of inlet with *Torrent* visible.



*Fig. 1.2.73*  
Sand meeting rock.

opportunities for organisms). On some occasions, it appears as if the rock is gradually immersed in the water and the limit between both changes over the days and years due to the weather and tidal activity, whereby part of the rock is sometimes completely exposed to the air and sun and other times is covered with the sea water, creating very special conditions (of temperature, moisture and others) with small creatures or microorganisms colonising this limit, such as algae and crabs.<sup>125</sup> This is an in-between where two basic elements meet, one being fixed and the other in a state of constant but predictable change.<sup>126</sup>

This inlet hosts a human-made area integrated in the south-west edge of the inlet. This consists of a few fishermen's boathouses, with ramps allowing the loading and unloading of small boats from the water. Bathers take advantage of the hardstanding, using it to sunbathe and jump into the water. This junction of water with hard surface (concrete) provides a flexible space, an alternative to the sand of the inlet. However, from an environmental perspective, it is a quite inert edge with few organisms colonising it.<sup>127</sup>

### **Sand Meeting the Cliff**

Sand is the primary element that defines the inlet area between the cliffs. Being in the inlet means standing on sand and being protected by the sky (ceiling) and cliffs (walls). The horizon, drawn between but behind and faraway from the cliffs, embraces the immense sea, bringing a sense of containment for the perceiver. This constant line directly relates to the ever-changing shoreline in the inlet where the sea is discontinuous, preceding the sand. The horizon is an illusionary line but ironically, it is the one perceived as a constant element.

The ingress to the inlet is via the manmade stone path, which is part of the cliff and ends on the

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<sup>125</sup> The entrance-links of *L'illa Diagonal* can be considered pores in the rock. Pores that contribute to the porosity defining the rock. In the urban environment colonnades along the edge of the façade, or more sporadic and temporary elements appear and disappear as such as canopies, sun shades resembling the porous of the rocks (for Bobić these are decisive elements defining "urbanity"). The urban environment provides more variety and versatility in a short time reacting to external agents to create the best conditions for inhabitation. Lynch presents the edge as a variable longitudinal element that can attract and repel. Here, the porous and the treatment of the edge façade is to attract; create the optimum conditions for inhabitation.

<sup>126</sup> The colonnades or the stoop are physical elements that provide a spatial configuration and like the rock it takes great effort and time to change them. Thus, the external agents immediately affect outside spaces and continuously change. These temporarily re-arrange the spatial configuration and with it, modify the dynamics around it. The effects of the external agents have a direct effect on outdoor spaces and we have developed more tactics to deal with them. These increase the differences and unevenness between inside and outside.

<sup>127</sup> On the one hand, this alternative zone provides diversity, one of the aspects in urban realm that Jacobs advocates. In this case, it is diversity of activities and a different experience. On the other hand, as this platform is made of an external material, concrete, it seems not to have blended as well as the rock hosting a great variety of organisms. At this scale this limit is less active and more inert.





Fig. 1.2.74  
Sand crossed by the *Torrent*.



Fig. 1.2.75  
Water carving the sand.

sand which visually takes over most space between the cliffs. Once the sand reaches the water, it disappears under. In the opposite direction the rocks and soil metamorphose, becoming the substrata to the vegetation (and water) that grows into the *Torrent*. The sand is a malleable material that adapts and changes relatively quickly, registering storms, footprints, changes of humidity and sun until something else happens. For instance, when the visitor walks on the sand her footprints mark the surface and the footprints are transformed by others walking over them, blurred by the wind or completely disappear due to rain. At the bottom of the path is where she first touched the sand, which embraced her feet, contrasting with the preceding stone steps that provided a hard support with a clear limit between her and the stone. Sand is no more active in the way it reacts to her footfall than the rock, but the sand moves slightly for a minor occurrence in contrast to the rocks, for which an incident must be significant in order to be registered. Therefore, these areas (cliffs, inlet) change and register occurrences through time differently, due to their intrinsic characteristics, acting as substratum or support. The experience of walking on a hard surface is something that she experiences daily and it is engraved on her memory, as well as the sensation of touching and standing on sand.

The encounter between the sand and the cliff varies through time depending on the weather, in terms of how windy and much rainfall there has been through a cycle of a year affecting the displacement of sand. The sand, on the side of the inlet exposed to the wind, will wash out exposing more stratum (rock) and this will be deposited somewhere else, thickening the upper layer and consequently re-defining the topography.<sup>128</sup> In some places the sand will meet the rock in a defined clean line and in others with a strip containing sand, stones, vegetation, algae.<sup>129</sup> Thus, these behaviours are noticeable at the intersection between these two elements: rock and sand.

### **Sand Crossed by the *Torrent***

The *Torrent* is a feature that appears and disappears during the summer depending on the amount of rain received and sometimes it is difficult to guess its last location. The water from the *Torrent* reaches the inlet, imprinting its path on the sand. Over the years, it follows

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<sup>128</sup> The sand to certain extent registers changes brought about by the external agents and also the rhythms of the day-night and seasons. The urban environment is affected by these latter rhythms and Whyte studied their effects, though there is no element as malleable as the sand in terms of recording slight changes.

<sup>129</sup> This suggests the possible attribute of the edge as being able to vary along its length that Lynch presented. This was experienced with the kerb, as it is able to adapt to allow at certain points to be crossed by pedestrians and at other points by vehicles. Another example is the façade accepting and adapting to the openings. These are points of negotiation.



*Fig. 1.2.76*  
Eastern edge of the *Torrent*.



*Fig. 1.2.77*  
Western edge of the *Torrent*.

roughly the same path but varies in width depending on the flow of the water in relation to the interrelated terms of quantity and speed. The flow of the water, after a storm, reaches its high peak affecting the speed and the width of the water path. Sometime afterwards, depending on different variables, the flow slows down establishing a more or less constant width of water path that re-inhabits the old track. This water is an added element, adding a layer that appears and remains for a period of time, but then disappears and reappears again in a loose cycle. The same can be said of the track carved in the sand. The traces of the track remain until these are erased when the beach is prepared by the local council for intense use during the summer months. Therefore, an in-between is created by the water and when this disappears the traces on the sand are read differently from an in-between, as the sand is a continuous substratum and incidents within it are created but read as abnormality within a whole. The track of water creates two distinct borders at each side of it that register the speed by which the water reaches the inlet, adapting to its morphology and defining the degree of abnormality. The following section explores in more detail the margins created or manipulated by water, including these two.

### **Seawater and Freshwater**

As mentioned previously, in its final stage, the *Torrent* crosses the inlet prior to entering the sea and adopts more or less the same position year after year. The sand is the constant and continuous element, acting as a substratum and the water is the juxtaposed variable element, capable of shaping the substratum and this is visible. The water manifests itself as a watercourse with a point of departure somewhere inland and a place of destination, the sea. The watercourse, in the transversal direction, has a width with implicit distinctive boundaries at each side where the water disappears, and the sand becomes the main visible element again.

The north-west side is defined by a gentle edge similar to the one we encounter on a beach. The sand has a moderate, but perceptible, slope perpendicular to the watercourse, due to the water compacting and slightly displacing the sand. At some moment, the water will reach a specific point, forming a line along the watercourse creating “the edge” but this line moves slightly to a high and low point defined by the flow of freshwater that the watercourse carries and also to the tidal changes. In the pictures, we can observe that subtle lines are drawn on the sand by debris, carried by the watercourse and deposited at these specific points and levels. Stronger lines of debris are drawn at the level reached by the water, due to the pressure of the high tide, and further away there is another line distinguishing wet and dry sand. Therefore, the north-



*Fig. 1.2.78*  
Freshwater meeting seawater.



*Fig. 1.2.79*  
Water, reflections and sand.

west side is defined by a strip that varies over time due to water level changes and this, in one way or another, gets imprinted on the sand.

The south-east side is different with a more abrupt topography as there is a noticeable change of level between the area with water and without water. The watercourse creates a micro-topography, a sharp edge. A priori, the visitor identifies a verge defining the limit of the sand where the change of level occurs. Then, the water defines a clear line. If we zoom in, we can observe the more or less sharp line defining the point at which the sand sharply changes level, a second line defined by debris and a third line of the water. This varies, providing a high and low point that follows the rhythm of the sea. Hence, this edge is sharper than the previous one, but we still can identify a few lines corresponding with layers of the water moving and sand due to different aspects.<sup>130</sup>

Whilst the watercourse is present in the inlet, it influences the way people inhabit and place themselves on the beach. This divides the inlet into two and in order to get to the other side, she needs to cross the *Torrent* creating a “here” and “there”. The water reads as an added element through which she can see the sand, noting that the sand is the substratum as it is her support at all times, even if she perceives it differently depending on it being dry or wet.

At some point, freshwater meets seawater at the seashore. However, a shoreline is impossible to identify exactly, and it varies slightly throughout the day.<sup>131</sup> The two waters, somewhere near to the shore, meet and mix (exposing a peculiar behaviour for most of us but perhaps predictable for a physicist or expert in fluid dynamics). The freshwater is less dense than the seawater and usually has higher temperature and she feels it when moving from the *Torrent* into the sea.<sup>132</sup>

<sup>130</sup> In this case the limit has a width, composed of diverse lines or things and the width within which the limit takes place seems variable. The dynamics between the different elements are somehow revealed or made visible in this zone. Alexander and Bobić, in different ways and based on different understandings, referred to the limit as being able to harmonise tensions and negotiate differences. This was the case of the wall delineating the inner open space of *Jardins de Lina Ôdena*, the pavement with its edges (façade and kerb), the façade and the kerb.

<sup>131</sup> There is a constantly ever-changing, but predictable, negotiation between the water and the sand is visible through the waves. The water goes and comes back over and over, and the sand resists it in a gentle way. The waves (water) sometimes reach a further point, but then recede back and if this is helped by the pressure from the moon, then this acquires more strength thus taking territory from the sand. The limit between the public and private domain in urban areas is somehow similar to this situation. The dynamics are constituted by internal elements but also greatly influenced by punctual external agents. A variable strip can be identified, and it is governed by complex tensions and negotiations between elements and agents that define the dynamics and richness of the place. It is a place for “togetherness” where water and sand actively meet, displaying their “distinctiveness” in terms deployed by Stevens. It can also be reflected upon “urbanity” (Bobić) and the equivalent in the landscape.

<sup>132</sup> In one area, before the waters had time to blend, there is a limit between them, felt on the skin. Nonetheless, it is not visible and is just identified if we put ourselves in that location. This effect takes place



*Fig. 1.2.80*  
Close up of freshwater meeting seawater.

At this location, once again the substratum is the sand, the element beneath the water and where she stands. The water could evaporate, and she will still stand up but she needs the sand as support.<sup>133</sup> The sand registers the movement of the waves and she feels this micro-topography underneath her feet and sees it reinforced by the shadows playing through the transparent water. She expects the water at its surface to mimic the undulations of the sand, but this is not the case. The sand has an undulation and the water describes a different movement, even in some parts perpendicular to the waves. The freshwater seems to slide on top of the seawater and thus the waves perpendicular to the sand-waves belong to the freshwater, telling her about their origin, the *Torrent*. Due to the transparency of the waters, she cannot visually see how these two layers of water mix together and in the contact point, brackish-water appears and this expands through space and time.<sup>134</sup> In this case, what she feels is stronger and clearer than what she sees. She feels the two waters due to the difference of temperature, the undulation of the sand on the bottom of her feet and the waves where the water reaches slightly different heights on her legs. She sees the undulation of the sand at the bottom, the waves of the water in a different direction from the undulations of the sand and the reflections of the water and shadows associated with this micro-topography, helping her to notice and question about these effects. Through reflection and shade, the sun makes them clearer and crosses through layers questioning if there is a juxtaposition of things taking place, or layering. And, where are the limits between these elements? It is easy to define the limit of the sand and this could indeed be recorded and mapped. But could the other limits be located?<sup>135</sup>

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in a very specific location and reveals some otherwise unnoticed dynamics.

<sup>133</sup> Then, the sand is the constant limit and the water provides an added limit to when she was standing outside the water. The limit of the water before reflected the sky and was between the cliffs; now, it has added another limit that is felt and experienced. The limit of the water with the air is felt on the legs becoming very aware of the attributes of the water. This limit contributes to the “transitional scale” already deployed and explained in the case of *L’Illa*.

<sup>134</sup> A limit disappears in a gradual way (there is a spatio-temporal transition) and one does not impose on the other, but rather they merge. This effect reveals an intrinsic property of the water as liquid that is much more difficult to accomplished with other elements.

<sup>135</sup> This was experienced, observed and recorded through photography at the end of the summer. The freshwater was warmer than the seawater and the sun was shining, creating reflections and shadows that exposed the phenomena of transparency and juxtaposition. Prior to this exercise, I would not have thought about a limit between the waters. Obviously, there is a border in the vertical dimension where both meet with a surface of contact, and this grows in depth through length, providing brackish water; a mixture of fresh and saltwater.





## Seawater and Sand

When the *Torrent* is present, this edge is very complex, as described in the previous section. Nevertheless, when the *Torrent* is absent, she experiences a more conventional beach with a clear shoreline, with a strip defining the encounter between sand and sea. In this strip children play, people stand to talk, walk along it, feeling the coming and going of the waves on their legs; it becomes place for contemplation, marked by the waves that set a rhythm felt by the eyes, ears and skin.

In summer, the sand is cleaned by beach workers, erasing the prints of the *Torrent*, making a clear attractive platform for people to enjoy at their leisure. The vast area of sand contains areas with vague zones. There is a large part with dry sand followed by an area with humid sand demarcating the zone the sea reaches for just a part of the day, due to the tide, and finally the strip where the sea over and over again covers the sand. The waves delimit this strip with their coming and going, reaching a low and high point, in this case defined by the point where the wave brakes even though the sand of this area is always under water.

The sand surface progresses towards the sea and disappears peacefully underneath it, but then the water comes towards it and comes and goes and this process is repeated over and over again. With her eyes, she draws a line at the edge of the water that continuously moves up and down, disappearing and reappearing and again reappearing and disappearing. Each time, the line reaches a slightly different position at the bottom and top, but after observation it becomes predictable thus revealing the inner rhythm that is repeated over the days, months and years. Standing where the wave dies, she observes that water and air filtrates into the sand, becoming visible through little bubbles. There is a fluctuating strip with bubbles at regular intervals intrinsic to the waves and the lines where the waves die. From this point, she perceives independent waves; one comes and goes, and another comes and goes like the tick-tock of a clock. On the contrary, when she contemplates the inlet from the high entrance point, waves are manifested in sequence overlapping in time, helping to understand how this works.<sup>136</sup> This is part of a complex system whereby waves arrive while others leave without much interference,

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<sup>136</sup> At this point, she experiences continuity of time through various ways. Different views provide different understandings and the limits are also different, even though they are the same or on the same element.

*Fig. 1.2.81*

Opposite. Seawater meeting sand, timed exposures.



*Fig. 1.2.82*  
View into the inlet from the western headland.



*Fig. 1.2.83*  
View from inlet, looking inland.

working like a piece of machinery. The photographs show how these are manifested at the point where the wave breaks but also with moving debris. She is looking at an effect in one specific area, but it comes from far away and there is a symbiotic relationship between the topography and seawater, with a repercussion on how the waves behave. When the wind is extreme, it will have an effect on the waves, but the effect of the sun is less clear.

## Summary

In this case study, the various limits have been presented from afar (overall view) to near (zoomed or partial view), and from large to small scales. Nonetheless, at certain points, the limits of a close-up view are presented against, or having in mind, the large view.<sup>137</sup> The inlet is first experienced from outside, then it is entered from above providing the overall view and finally it is experienced it from inside. These different viewpoints provide a multiple understanding of a limit or element without one scale being more relevant than another. Nonetheless, one experience associated with a sequence of views may be more relevant than another, in relation to its impression on us. For example, the cliffs forming the inlet act as façades, containing. At another moment, these are part of the coastline revealing an inside and something intimate. Or the cliff is an in-between fixing and connecting the sky and the sea or sand. At other times, it reveals the rhythmic movement of the sea and deals with the pressure and incessant negotiation with the sea. Something similar occurs with the *Torrent*, which has a place at the territorial scale marked by its longitudinal dimension, but this can be considered as an in-between as it traverses the inlet where the width takes precedence, revealing the margins at its sides. Each of these at some moments act as limits and at others display limits relating to other elements; these together provide a reading of the transitional scale. The mutation between the limits constituted by the same element is the smoother part of a continuum reinforcing the sequence of views that define our experience of the inlet.

Nature is in constant flux and this is reflected in the limits. The limit is the result of pressures and negotiations that seek balance, yet only achieve a passing equilibrium. The pressures and tensions that one element poses on another may be of equal or different strengths and as a result, one may lead the changes and the other absorb them. However, external agents can also provoke changes to the elements and make them react against each other, resulting in rhythmic

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<sup>137</sup> The scalar approach was not based on professional grounds but on how this presents itself through enfolding views, defining the experience of the inhabitant.

patterns that influence the changes. In these cases, the limit is a result of a triangulation and to some extent and measure, it can be predicted.<sup>138</sup>

Morphology seems to enable and generate situations and limits. In the inlet, to a great degree, the dynamics are determined by its morphology. The changes taking place over time get engraved in the limits, defining the forms through which we experience them, understanding their current status as well as their past. This is the case of the limit between the rock and the sea. At the limit between both, the rock presents a coloured and eroded strip, telling us about time, movement and composition in relation to each other. The strip is not homogeneous, displays a zone that reflects greater contact and a zone with more sporadic or past contact due to the movement of water and influenced by the full moon and seasons. The two margins of the *Torrent* present their particular spatial configuration, characterized by the morphology of the inlet and defining the way the water moves through it. The water also simultaneously defines the margins which register the amount of water and its speed, which in turn reflects the morphology of the inlet. Thus, one morphology echoes another, disclosing relationships that define the parts and the whole.

A good number of limits experienced in the inlet evoke limits and conditions experienced in the urban environment<sup>139</sup> despite the disparity between the two environments. The limits of the inlet present themselves as more elusive and gentler, with long-term tensions and negotiations determined by the intrinsic rhythms that are imposed by nature. In contrast, in the built environment, the delineation of the limits is more formal, probably harder, as the physical spatial configurations are imposed. In the urban cases, the negotiation at the limits involves people who can modify the spatial configurations through time. In the landscape, this may be compared to a significant natural event, such as a big storm, and even in some cases a tsunami, which provokes rapid change. Otherwise change is like evolution, taking place at a gentler pace. Nonetheless, the natural external agents in the landscape are predominant and play a big role in the built environment where they exist, but are controlled by artificial agents.<sup>140</sup> The timescale

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<sup>138</sup> This refers to the periodicity of certain external agents. Although, with climate change there is less predictability. It is striking that when I visited the inlet in December, I expected to see the *Torrent*, but it was not there. By contrast and perhaps counterintuitively, the first time I visited at the end of the summer, it was there. The seasons are more erratic, rainfall and temperatures are less predictable and are not complying with the rhythms that used to govern them.

<sup>139</sup> Like the kerb, the façade of buildings and limit of the block, the inner wall of the inner open space of the block, the façade of *L'illa*, the linkage-entrances of *L'illa*. And, they evoke and present some of the points put forward by the urban thinkers. The dynamics of and around the limits are better understood in relation to change, negotiations and tensions, harmony...

<sup>140</sup> The natural agents as such as the wind, sun, rain and the like still have a role to play, but then governance and management via rules established at different levels have a greater effect on the urban

in both environments is different and thus so are their limits; one relating to geological time and the other to human lifetime. The transitional scale and thus the mutation between the limit/s of an element from one scale to another scale, is smoother than in the urban cases.

The experience and descriptions of the "limits" of the case studies have enabled me to identify more specifically what I refer to as "limit" and where these emerge or present themselves. The descriptions have also helped me to survey and test, in relation to personal experience, the 'idea of the limit' articulated by the urban design thinkers. Subsequently, due to these experiences, I have reached a greater understanding of some of the ideas and have furthered my knowledge of the way the limits operate and their dynamics. Experiencing the limits directly and then writing about them, has enabled me to shift between the experiential, specific and tangible to abstraction, to better understand notions, ideas and attributes presented by the urban thinkers and vice versa, yet also to comprehend and reach the subtleties.

Some of the most influential authors on my reading of limits were Cullen, Jacobs, Stevens, White, Bobić, Lynch, Alexander et.al., Cooper Marcus and Francis and to a lesser extent Larry Ford, Gehl and Sitte and authors related to the figure-ground and Nolli plan. The recurring terms related to the limit in the descriptions are *boundary, edge, rim, margin, threshold, portal, doorstep, doorway, in-between, transition, interface* and *liminal*. The attributes that repeat themselves are that the limit has a dimension, and in many cases, is identified as an entity. At one level it separates and at another it links, changes over time, but also varies along its length and width. It is physical, yet it may have a psychological effect. The limit is submitted to pressures, tension and negotiation.

Based on the experiences of the limit, a limit locates, and it is located. It may be defined or define other limits or other aspects of adjacent spaces or elements. Thus, it reflects the surroundings and it can be recorded. Views are structured and defined by the position of the viewer as this defines the "here" and the rest are given by the place. The "here" and "there" change as the viewer changes position and there is some correlation between views, though a "here" may become a "there" and vice versa. At some point, one of these may disappear and others appear. Therefore, this applies to the grounds and also to their inherent limits. Correlation of the "here" and "there", the grounds and inherent limit seem relevant.

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limit. Ownership, who maintains what to name a few are decisive on the limit and its experience.

## On the Limit

The experiences of these case studies- urban and landscape- have been explored through photography and description. The descriptions have highlighted the variety of words available in English to account for the experience of limits. These words relate to, and also supplement, the vocabulary used by urban design thinkers to account for the notion of limit. They open-up the possibility for me to attempt, with the help of the philosophical ideas, a working definition of the limit in the built environment.

## 1.3 Defining and Redefining the Limit

Between

In-between

**Border**

Bound

**Boundary**

Connect

Door- Doorway

**Edge**

Enclosure

Interface

Join

**Limit**

**Liminal**

Line

**Margin**

Perimeter

Portal

Separate

Shoreline

**Rim**

Strip

Transition

**Threshold**



Terms shown on the list emerge from my accounts of my experiences of limits in the urban and landscape case studies. They are all terms related to limit and boundary, evocative but also confusing. Confusing in the sense that all the words are part of our everyday language, displaying the relevance of the limit in our everyday life through the richness in the variety of terms. Nevertheless, it is difficult to differentiate them precisely. They are similar but different, indicating significant nuances in the experience and definition of limits. These meanings, as we speak, are calibrated and re-calibrated. This study explores terms as such as limit, between, boundary, border, edge, liminal, margin, and threshold. This section concentrates on identifying the origins and meanings of the key terms based on etymological studies. Where appropriate, relationships between terms and correlations and discrepancies between 5 European languages are indicated.<sup>1</sup> In the subsequent section, 'the notion of the limit' is extended and these terms will re-appear and be re-defined or re-tuned within an emerging theoretical framework, aiming to establish a terminology to further progress this research. Therefore, this section opens-up subsequent discussions out of the experience of limits.

### 1.3.1 Etymology of the Limit

The *Oxford Dictionary of English*<sup>2</sup> defines the noun *limit* as "1. A point or level beyond which something does not or may not extend or pass [...] The terminal point or boundary of an area or movement. 2. A restriction on the size or amount of something permissible or possible". These definitions convey negative meanings referring to the end of something, or something that restricts. It is also noted that the noun *boundary* is included in the definition; a contested word in this research. The etymology of *limit* refers to the nominative Latin word *limes*. The *Concise Oxford Dictionary of English Etymology*<sup>3</sup> translates it as "frontier" and the *Online Etymology Dictionary*<sup>4</sup> as "a boundary, limit, border, embankment between fields", evoking the sense of a division and territory; something that separates. In the same dictionary, *boundary* is defined as "1. A line which marks the limits of an area; a dividing line. A limit of something

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<sup>1</sup> The five languages are English, German, French, Spanish and Catalan. This study is conducted in English and a considerable part of the literature and information is accessed in this language. German and French are relevant due to their philosophical tradition. And Spanish and Catalan are selected as part of the study has been conducted in Spanish and Catalan territory, the researcher accessed first source of data in these languages and the main philosopher studied wrote in Spanish but was Catalan and spoke the language.

<sup>2</sup> "Limit", *Oxforddictionary.com* (Oxford University Press, 2018), <<https://en.oxforddictionaries.com/definition/limit>> [Accessed 25 March 2016].

<sup>3</sup> T. F. Hoad, ed. *The Concise Oxford Dictionary of English Etymology* (Oxford University Press, 1996), <<http://www.oxfordreference.com/view/10.1093/acref/9780192830982.001.0001/acref-9780192830982-e-8749>> [Accessed 7 May 2018].

<sup>4</sup> Harper, Douglas, *Online Etymology Dictionary* <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=limit](http://www.etymonline.com/index.php?allowed_in_frame=0&search=limit)> [Accessed 07 May 2018].

abstract, especially a subject or sphere of activity". In this case the word limit is central in the main definition, but the definition also uses the word "line" as limit, which is a measurable and tangible element that implies, again, separation. The definition in *Merriam-Webster dictionary*<sup>5</sup> goes even closer towards the action of separation, defining boundary as "something (such as a river, a fence, or an imaginary line) that shows where an area ends, and another area begins, a point or limit that indicates where two things become different". This relates to the philosopher Martin Heidegger's reflection upon the horizon from the ancient Greek *horos* meaning "boundary, landmark, marking stones"<sup>6</sup> and Heidegger says of it "that at which something stops, but [...], the boundary is that from which something *begins its presencing*".<sup>7</sup> Furthermore, the word horizon has the same root in all four languages. Limit in French, Spanish and Catalan comes from the same root as in English while it is different in German; *grenze*. On the contrary, the word boundary in German stays very close to *grenze* but it translates as limit or frontier into the other three Latin languages.

The Latin word *Limes* correlates with frontier "a line or border separating two countries"<sup>8</sup> rooted in the French word *frontière* that dates from the early 15<sup>th</sup> century. In Spanish and Catalan, it translates as *frontera*. In Catalan (and in English), the particle *front* is a direct reference to the military position of a battle, as in vanguard, conveying the position, line but more of a strip or limit where opposing forces contest territory. Anne-Lauren Amilhat Szary<sup>9</sup> reminds us that the first border of Rome was stained with blood. However, in geo-politics there is a broad consensus that border<sup>10</sup> refers to the dividing line between two states and boundary correlates with frontier referring to a strip of land along the border.<sup>11</sup> On one hand, the etymology of the boundary refers to bound (c.1200) and this is defined as limit and boundary rooted in the "Anglo-Latin

<sup>5</sup> "Boundary" Merriam-Webster.com, <<http://www.merriam-webster.com/dictionary/BOUNDARY>> [Accessed 26 March 2016].

<sup>6</sup> "Horizon", Online Etymology Dictionary, <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=horizon](http://www.etymonline.com/index.php?allowed_in_frame=0&search=horizon)> [Accessed 09 May 2016].

<sup>7</sup> Martin Heidegger, *Poetry, Language, Thought* (New York: Perennial Classics, 2001), p.154. It is worth noting that Heidegger refers to *peras* as opposed to *aperion*, meaning boundless and not infinite.

<sup>8</sup> Angus Stevenson, ed., *Oxford Dictionary of English* 3rd edn (Oxford: Oxford University Press, 2015), <[http://www.oxfordreference.com.abc.cardiff.ac.uk/view/10.1093/acref/9780199571123.001.0001/m\\_en\\_gb0318490?rsk=NdooOh&result=1](http://www.oxfordreference.com.abc.cardiff.ac.uk/view/10.1093/acref/9780199571123.001.0001/m_en_gb0318490?rsk=NdooOh&result=1)> [Accessed 25 March 2016].

<sup>9</sup> Anne-Lauren Amilhat Szary, 'Boundaries and Borders' in *The Wiley Blackwell Companion to Political Geography* ed. by John A. Agnew, Virginie Mamadouth, Anna Secor, Joanne Sharp (Chichester, West Sussex, UK: John Wiley & Sons Ltd, 2015), p.15.

<sup>10</sup> Border in Spanish translates into *frontera* or *borde*. In Catalan and French, it only translates into *frontera* and *frontière* respectively.

<sup>11</sup> Ibid. pp.14; David Newman, 'Borders and Bordering. Towards an Interdisciplinary Dialogue', *European Journal of Social Theory*, 9 (2) (2006), pp.171-186; Anssi Passi, 'Boundary: The Word, Concept and Practice', *Current Anthropology* vol. 55 (6) (2014) pp. 42- 43.

*bunda*, from the Old French *bonde*” and earlier Medieval Latin *bodina*.<sup>12</sup> On the other hand, border appears later around the 15<sup>th</sup> century “from Old French *bordure* defined as seam, edge or shield border”.<sup>13</sup> The use of the word “seam” to define a border poses the emphasis to the idea of continuity and unity through the seam: the joining of two materials which usually happens at the edges seeking continuity and at least, a smooth transition between the two.

The “Online Etymology Dictionary” also relates the noun limit to *limen*, which translates as “threshold”, meaning “1. A strip of wood or stone forming the bottom of a doorway and crossed in entering a house or room... a point of entry or beginning”<sup>14</sup> that contrasts with the previous meaning of the limit, *limes*, as the end of something and a static concept. The idea of the threshold is more in line with Heidegger’s reflection upon the boundary. The adjective of limit, “liminal” as deployed by anthropologists, also has its origins in *limen*, the threshold and *limitaris* (adjective) “that is on the border”<sup>15</sup> and as Arpad Szokolczai<sup>16</sup> points out, the Latin *limes* (limit) “is equivalent to the Greek *peras*” (boundary). Then the *limen*, or threshold,<sup>17</sup> is where the limit is subverted directly relating to the *apeiron*, the boundless; that which has no boundary as postulated by the first Greek philosopher Anaximander.

The noun margin, coined in the mid-14<sup>th</sup> century and defined by the Oxford Dictionary of English as “1. The edge or border of something, [...] 2. An amount by which something is won” and evolved “from the Latin *marginem* (nominative *margo*)” and from Proto Indo-European languages (PIE) “*merg-* edge boundary, border”<sup>18</sup> and refers also to mark,<sup>19</sup> which takes us

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<sup>12</sup> Online Etymology Dictionary <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=bound](http://www.etymonline.com/index.php?allowed_in_frame=0&search=bound)> [Accessed 28 March 2016].

<sup>13</sup> Ibid., <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=border](http://www.etymonline.com/index.php?allowed_in_frame=0&search=border)> [Accessed 28 March 2016].

<sup>14</sup> “Threshold” Oxford Dictionary of English <[http://www.oxfordreference.com.abc.cardiff.ac.uk/view/10.1093/acref/9780199571123.001.0001/m\\_en\\_gb0861310?rkey=cnYyeA&result=1](http://www.oxfordreference.com.abc.cardiff.ac.uk/view/10.1093/acref/9780199571123.001.0001/m_en_gb0861310?rkey=cnYyeA&result=1)> [Accessed 25 March 2016].

<sup>15</sup> “Threshold” Online Etymology Dictionary <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=threshold](http://www.etymonline.com/index.php?allowed_in_frame=0&search=threshold)> [Accessed 26 March 2016].

<sup>16</sup> Arpad Szokolczai, ‘Liminality and Experience: Structuring Transitory Situations and Transformative Events’, in *Breaking Boundaries. Varieties of Liminality*, ed. by Agnes Horvart, Børn Thomassen, Harald Wydra (New York, Oxford: Berghahn, 2015) pp.11-39 (p.11).

<sup>17</sup> Threshold translates differently in the other languages; in German translates into *schewelle*, in Spanish into *umbral*, in Catalan into *llindar* and in French into *seuil*. Whereas the adjective *limen*, liminal keeps this form in all languages except in German that takes a similar form to threshold or limit.

<sup>18</sup> “Margin” Oxford Dictionary of English.

<sup>19</sup> “Mark” Online Etymology Dictionary <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=margin](http://www.etymonline.com/index.php?allowed_in_frame=0&search=margin)> [Accessed 28 March 2016].

back to the etymology of boundary and border. In Merriam-Webster,<sup>20</sup> “mark” is defined as “a boundary land” and in The Concise Oxford Dictionary of English Etymology as boundary and target. The Online Etymology Dictionary defines it as “trace, impression” and the verb as “to put a mark on”, from the Proto-Germanic “to trace out boundaries”.<sup>21</sup>

For the noun edge defining margin, Merriam-Webster’s dictionary provides three different meanings with exceptions in each and the second and third relate to the limit and boundary. The edge is a “2.a: line where an object or area begins or ends: border-on the edge” related or belonging to a surface. “2. b. The narrow part adjacent to a border” relating to the corner or the turning of a surface as the corner of a table; “2.c.(1) A point near the beginning or the end” referring to an in-between like a verge or a brink. “2.c.(2) The threshold of danger or ruin” relating to the act of being at edge; at the end of or an in-between. “3.d A Favourable margin: advantage” concerning to a position and it has a width relating to the front in military sense presented earlier. “(3) A line or line segment that is the intersection of two plane” indicating the intersection of surfaces, usually of the same object as found in a pyramid.<sup>22</sup> Hence, edge covers a wide range of situations, but it does have a direct translation into the other languages which at least one of the available translations relate to border.

The terms above have become entwined regarding their etymologies and meanings. The term “bound” is recorded as the oldest noun, followed by the words “border” and “frontier” with different origins. The noun and verb “mark” was unexpected and found through the term “margin” intertwined with “edge”, “boundary” and “border”. The terms horizon, margin and mark have the same root in the four languages while limit, liminal, portal and perimeter have the same root except in German. Finally, the terms, bound, boundary, edge and threshold have different roots in all languages.

The next section, while defining the limit and its conceptual framework, also seeks to examine and clarify the terms above based on their usage; firstly, in the field of philosophy, followed by anthropology, sociology and geo-politics. Consequently, it explores the definition of “limit” (*limes*) referring to “boundary” and vice versa; the limit as restriction imposed beyond a line

<sup>20</sup> “Mark”: The margin brings to light the between; a distance or space between two measurements or an edge and something. <<http://www.merriam-webster.com/dictionary/margin>> [Accessed 28 March 2016].

<sup>21</sup> “Mark” <[http://www.etymonline.com/index.php?allowed\\_in\\_frame=0&search=mark](http://www.etymonline.com/index.php?allowed_in_frame=0&search=mark)> [Accessed 28 March 2016].

<sup>22</sup> “Edge” Merriam-Webster.com <<http://www.merriam-webster.com/dictionary/edge>> [Accessed 9 May 2018].

or point;<sup>23</sup> the boundary as a division yet a zone where two things encounter and become something different and the boundary directly related with frontier as a strip of land along a border. Furthermore, it explores the etymology of bound-ary aligned upon bound defined as seam contesting the definition of border as “a line”. It enquires the limit-as *limes*- allowing *limen*, threshold which allows for being at the limit uniting them and allowing for the limit to be transgressed. Thus, the limit is explored and unravelled aiming to reach a workable definition of the limit for urban design and architecture based on its experience and sustained by theory.

### 1.3.2 Notions of the Limit

Having identified the nuances of limit through experience, and examined etymologies of key terms, this section concentrates on identifying a conceptual framework for the limit. It draws upon existing complex conceptions in relevant fields, starting with the field of philosophy, moving towards anthropology and ending with sociology and geo-politics. From this study, an approach to, definition of, and qualities of the limit applicable to urban design and architecture will emerge. The intent is not to offer an exhaustive explanation of all existing propositions on the limit, but rather a selective account of stances that are relevant and applicable to the physical limit daily experienced in our environments.

This section is structured into four sections. The first section covers the limit in philosophy starting with Anaximander’s introduction to the *apeiron*, then Plato’s discussion of the infinite and finite is presented to reach Immanuel Kant’s notion of the transcendental. Heidegger’s understanding of phenomena is presented leading to the “Philosophy of the Limit” by Eugenio Trías i Sagnier<sup>24</sup>, which is explained in some detail comprising the second section. The third section comprises the limit in anthropology, focusing on the liminal by presenting the notion of the threshold (*limen*) and the city wall (related to *limes*). Fourthly, the limit in sociology and geo-politics is presented by first discussing the notion of the edge and margin. Then, the idea of border in geo-politics is introduced, considering its particularities and aiming to clarify the differentiation between the boundary and the border. This part ends with a brief conclusion defining the limit. This draws together terms emerging from experience and philosophical accounts to approach a working definition of the limit for the remainder of the thesis.

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<sup>23</sup> This implies that there is a knowledge or experience up to the limit but not beyond. The here is known, based on the limit, in the sense that this characterises it relating to the “idea of horizon” and boundary.

<sup>24</sup> Spanish or South American authors usually have two surnames. In the first instance, the author is referred to by both surnames and from then on by just the first.

## The Limit in Philosophy

The idea of the limit is central to the branch of epistemology, “the study of knowledge”, which is divided into two categories: firstly, the nature of knowledge and secondly, the question “are there limits to what we can know?”.<sup>25</sup> Thus, many philosophers (eg. Anaximander, Plato, Aristotle, David Hume, René Descartes) face these two enquiries, providing a broad spectrum of views. Trías<sup>26</sup> is presented in detail as his philosophy, produced from the 80s until his death in 2013, focused on the *Philosophy of the Limit* within Kant’s tradition of the method as the bases of any modern critical philosophy. Trías draws from western philosophical traditions, particularly Ludwig Wittgenstein, who said, “the subject is a limit of ‘the’ world” and to a significant extent Plato, Georg Wilhelm Friedrich Hegel, Friedrich Wilhelm Joseph von Schelling, and Heidegger. Thus, Trías’ philosophy of the limit is preceded here by a succinct presentation of the thinkers who laid the ground for Trías’ particular standpoint. I introduce Anaximander’s term of *apeiron*: “unlimited”. Then I present the four categories of the finite/infinite from Plato’s *Philebus*,<sup>27</sup> identifying an in-between introducing the “concepts” as a procedure of our minds in relation to thinking and knowing. Then, I reflect on the three limits of Kant based on the *Critique of the Pure Reason*<sup>28</sup> and his notion of transcendental contrasting with the transcendental and immanence in Trías. Subsequently, Heidegger’s belief in human finitude is presented based on the notion of “Being in the World”, forms of existence and temporality bounding existence.

### ***Apeiron Versus Peras According to Anaximander***

The review of the etymology of words brings to light the correlation between the Latin *limes* – limit- with the Greek *peras*-boundary. This notion is found in the writings of the first pre-Socratic philosopher Anaximander of Mileto (c. 610-546 B.C.E.) who believed *apeiron* (Greek, boundless) to be the opposite to *peras* “which has no boundaries” and is “the origin of all things”<sup>29</sup> though he did not specifically explain the meaning of boundless. It is notable how consequent authors

<sup>25</sup> David A. Truncellito, ‘Epistemology’ in *Internet Encyclopaedia of Philosophy* ed. by James Fieser and Bradley Dowden, <<http://www.iep.utm.edu/>> [Accessed 9 May 2018].

<sup>26</sup> Trías proposed the *Philosophy of the Limit* presented in a trilogy of books where the person dwells from the limit as well as being herself the limit. The trilogy of books is: *Los límites del mundo*, (Provença, Barcelona: Ediciones Destino S.A., 1985); *Lógica del Límite* (Provença, Barcelona: Ediciones Destino S.A., 1991); *La razón fronteriza* (Provença, Barcelona: Ediciones Destino S.A., 1999).

<sup>27</sup> Plato, *Phibelus* (New York: Oia Press, 2015), translated by Benjamin Jowett.

<sup>28</sup> Immanuel Kant, *The Critique of Pure Reason* (US: Pacific Publishing Studio: 2011), translated by J.M.D. Meiklejohn.

<sup>29</sup> Dirk L. Couprie ‘Anaximander’ in *Internet Encyclopedia of Philosophy* ed. by James Fieser and Bradley Dowden <<http://www.iep.utm.edu/>> [Accessed 9 May 2018].

relate *apeiron* to experience and perception specifically to “that which is not experienced”.<sup>30</sup> Thus, we only can experience what it is bounded, though the origin of things is in that *apeiron* which we cannot experience. This understanding implies a high level of abstraction and Anaximander’s knowledge reaches us primarily via the interpretations of his followers Aristotle and Theophrastus whose interpretations may not be reliable. Nonetheless it supports the general thinking of the Pythagoreans and Aristotle that perfection is associated with “limit, symmetry and harmony” and is consequently prime in our experience and perception. Aristotle argues that “everything has an origin or is an origin”. “The boundless has no origin” and this is the origin.<sup>31</sup> In a hesitant way, the “concept of idea” emerges with Anaximander, based on what we experience in the world which is bounded, and we experience it because it is bounded and anything that transcends our experience, the unknown, or what is beyond, is unbounded.

### **The Infinite and Finite in “The *Philebus*” by Plato**

In *Philebus*, one of Plato’s (c. 428-348 BC) last dialogues between Socrates, Protarchus and Philebus, he presents the dialectics around pleasure and wisdom (knowledge and reason) and their ontology asking questions such as; what are they, how do these two exist (their being) and what is their nature? Pleasure relies on the stimuli given to the senses from sound, drinking, eating and so on from which almost everybody gets pleasure and wisdom relating to knowledge in terms of founded opinions, reasoning and memory. The aim of this dialogue is to understand what contributes to human good and this is understood as defined in earlier dialogues: the good things for us that are self-sufficient, perfect and good for us. It is not about any particular aspect of our lives but as human beings. Everything we deal with or do is for a purpose and this final purpose is for our own good. During the dialogue, four categories of existence are established based on one and the many: (1) infinite, (2) finite, (3) union of infinite and finite and (4) the cause of their union. Jowett tells us in his introduction to his translation of the *Philebus* that pleasure belongs to the first, wisdom and knowledge to the third and mind or reason to the fourth.<sup>32</sup>

The above classification relates to Plato’s “theory of ideas or forms” introduced in *Phaedo*, discussed and developed in different dialogues and criticised in *Parmenides* and later on by his

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<sup>30</sup> Ibid.

<sup>31</sup> Anaximander, *Physics* 203b6-10, Diels and Kranz, doxographical report no.15 in IEP, second source Dirk L. Couprie.

<sup>32</sup> Note that different authors use different terminology; for infinite; unlimited and Jowett points out that in modern times infinite correlates better to indefinite.

successor Aristotle,<sup>33</sup> who explained the concept of “idea” by posing the question what makes a horse a horse? No horse is identical to another as there are no two persons identical, although we recognise horses as horses. Let’s imagine that I make a horse out of Lego blocks, then I take it apart putting the blocks in a box. Then, I shake the box expecting that the blocks will reconfigure themselves to make the horse again, though obviously this doesn’t happen. I can make the horse again because I have the image- the idea- of a horse in my mind, which includes the immutable and eternal characteristics of a horse; horse-ness. On one hand, the idea of a horse is immutable, eternal and finite and belongs to reason. On the other hand, the experience of the horse in the world of senses is tangible, mutable and changeable and infinite as there are many variants, contradictions within the variants and even opposites within the realisation of the idea of horse-ness. A horse can have three legs or be white, black or ginger or a combination of those and still be a horse. The world of the ideas is finite/limited, and this reveals eternal and immutable patterns and the world of experience is mutable, changeable and infinite.

*“...just as colour is like colour;-in so far as colours are colours, there is no difference between them; and yet we all know that black is not only unlike, but even absolutely opposite to white: or again, as figure (referred above as image) is like figure, for all figures are comprehended under one class; and yet particular figures may be absolutely opposed to one another; and there is an infinite diversity of them”.*<sup>34</sup>

Plato, in the Philebus and in the fragment above, presents the notion that the infinite can be applied in two different ways and both are based in the world of the senses through experience.<sup>35</sup> Firstly, he presents the many when experiencing infinite particulars, in this case colours, and in some cases that variety- within- admits the opposite. Above simply black and white; both are referred as colours as well as opposites. Secondly, the infinite also applies to all things that admit the integral to the comparative mode and associated to immeasurable adjectives as such as “gently”, “extremely”, “exceedingly” and some may accept the opposite. In the realm of pleasure, this may apply to driest, hungriest and the like which cannot be quantified. These two ways define the first category of the infinite. On the contrary, the category of the finite or limited refers to things with measure and quantity but also to measurable and quantifiable; to what orders (law) or what it has ordered. Therefore, it is twofold, referring to all things that have measure and to what assigns order and/or measure to things and this latter belongs to reason or human cognition. When this latter supposition is applied to the infinite,

<sup>33</sup> Jostein Gaarder, *Sophie’s World* (London: Phoenix House, 1995), pp.69-76.

<sup>34</sup> Plato, location 918 of 2021.

<sup>35</sup> The unthinkable, on the level of sensation; Plato, location 123 of 2021.



we encounter the third category where the infinite and finite are united; a way to limit the unlimited, enabling us to relate the many to the one (unity) and the reverse; the unity to the infinite. Unity here refers to a form as presented in “the theory of forms or ideas”. Here the two extremes are defined thus revealing a gap, intermediate, between the finite and infinite ignored by the Sophist but Plato utters that once the unity is identified, we may proceed to identify other units without compromising the infinite until the intermediate is defined as well as the extremes. He adds that we cannot be too quick or too slow “in conceiving plurality in unity” or vice versa.<sup>36</sup> Plato explains that he who starts with unity should first identify the determinate number before reaching infinity and vice versa. He who starts with infinity should look for specific particulars representing a unit and repeat this process until ending in one. To illustrate the intermediate, Plato refers to the sound as it “passes through the lips whether of an individual or all men is one and yet infinite”<sup>37</sup> and he moves on specifically to reflect upon the *Egyptian Myth* of Theuth to understand speech. Theuth observed that sound produced by the human voice is infinite and within all sounds produced by the voice in speech he firstly identified the vowels; a determined unity of voices, then he identified a second unity of not pure vowels that he called semi-vowels and a third unity with no voice called mutes. He defined each part of each unity; identified each sound by numbering and naming each of them in each unity. The knowledge of each sound in isolation is not of great help to us, but he observed that they are mutually related and uniting them encouraged him to call this “the art of grammar or letters”.<sup>38</sup> In this case, Theuth identified the device of law and order defining the intermediate moving from the infinite to the middle ground and to the finite and back to the middle and so on. Here we can understand how the one is many, and many is one and also intuitively how the two are interrelated and interdependent.

Perhaps Plato’s classification and application of the finite to the infinite and vice versa is obvious, but it explains a part of the way we think and are. In the way Plato presents his thinking, we may think that the in-between with an “in the middle”, defines a here where the experience takes place and a there where the reasoning translates the infinite, changeable and tangible into the finite, unchangeable and universal allowing for the order (law) to become apparent and make sense to us. The finite and infinite are associated and may be inherent to our nature. Here the finite is presented as a positive term enabling knowledge.

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<sup>36</sup> Plato, location 991 of 2021.

<sup>37</sup> Plato, location 1027 of 2021.

<sup>38</sup> Plato, location 1031 of 2021.

In the environment, the senses perceive no two boundaries<sup>39</sup> as identical and these are tangible, mutable and unlimited making the experience of the boundary infinite. Based on my experience, using reason and memory, I can identify the characteristics that compose the concept of boundary-ness which will be eternal and immutable in the sense that their essence is fixed and repeatable, allowing us to recognise a boundary and its properties. It is to answer which are these properties and in which categories they fall within and how can we make sense of them. As Plato says, perhaps it is from that middle position-in between- (no centre) where we can unravel the unknown and make sense of the things that are at each side of the limit.

### **The Three Limits in Kant**

Kant (1724-1804) is considered the first modern philosopher whose work is based on “the conflict between the unconditional reason –the infinity of freedom- and the conditionality of the senses –the finite of the body”.<sup>40</sup> He is an idealist, combining two theories of thought: rationalism and empiricism. The rationalists assert that our knowledge and concepts are learned in different ways independent of our experience, relying on the mind whereas the empiricists assert that our knowledge of things comes through the sense of experiences. On the contrary, Kant critically introduces aspects from both lines of thought presenting, at different stages, different epistemologies of the limit and it is the aim of this section to explain the three limits that Kant establishes as Szokolczai succinctly pointed out referring to an unpublished paper by E. Goddard.<sup>41</sup>

In his *Critique of Pure Reason*, Kant suggests that there are two basic types of knowledge: a priori and a posteriori, and then a sort of combination of both. The a posteriori is based on our experiences in the world (empiricists) and the a priori is independent of our experiences and it has an inward character (rationalists). Certain knowledge transcends the world of experiences, where the concept cannot correlate with an object and the reason follows its own investigations that are considered to be a higher level than those based on the world of the senses, which are questioned by the different generations over and over. These are enquiries of pure reason, belonging to the metaphysics around god, freedom and immortality which start with dogma far out of reach of reason. Therefore Kant, at this point, defines the first limit of the nature of the

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<sup>39</sup> We will refer to boundary here instead of limit to avoid confusions with Plato’s definite or limited.

<sup>40</sup> Vincenzo Vitiello ‘Sobre el Límite: En Diálogo con Eugenio Trías’ in *La Filosofía del Límite. Debate con Eugenio Trías*, ed. by Jacobo Muñoz and José Martín (Madrid: Editorial Biblioteca Nueva S. L., 2005) pp.45-46.

<sup>41</sup> Szokolczai, p.13.

human being, saying that we cannot know some things and we should not transcend this limit.

As with David Hume,<sup>42</sup> Kant believed that we cannot know the things themselves but only how they appear to us, taking us to the differentiation between phenomenon and noumenon. The subject (us) is placed in the centre as our knowledge of objects-things from the external world- is based on our experience of the senses. This knowledge is of how objects appear to us instead of knowledge of the objects themselves- referred to as knowledge of phenomena. The term noumenon refers to the unknowable, the object that may exist as it is perceived by us, but we cannot know the object itself. It refers to what it is beyond our reach; beyond the line drawn between our experience and the objects. Thus, Kant draws this imaginary line establishing a limit, in line with the first one, which cannot be transcended but on the other side of the spectrum, he is granting full freedom to reason by removing the limit. But surely, should reason not conform to measure and rules, as Plato himself voiced? Kant states that knowledge is founded on our experiences in space and time and these are filtered through our mental faculties.

Experiences can only take place in time and space which Kant qualifies as priori sensible intuitions. The experiences are filtered through our mental faculties (mind and reason) meaning that the experiences must correlate with the priori concepts/forms of our minds. The object is what it is after the subject has provided the form via the categories. In Plato and Aristotle, these were in the object and for Kant these are in the subject. For Kant, knowledge occurs when the mind corresponds to objects through the filter of experience or when objects conform to the concept in our minds. It is the reason; the faculty of working with concepts and correlating with the objects or vice versa. It is that faculty that makes the subject transcendental; it goes beyond. Reason is in each of us and needs discipline and order within which to think and judge, in a similar way to how Plato talked about the laws of the mind. We exercise our powers of reasoning according to principles and categories, allowing us to exercise the right to express objects and doubts. Therefore, Kant establishes a third limit to the way we acquire knowledge and the way we operate; he determined bounds-measures, laws- within which reason operates defining a boundary (limiting, defining, stopping).

Most interpretations of Kant's philosophy point to the negative connotations of the limit based on the Greek term *peras*, boundary meaning where something ends. Nonetheless, there is the alternative reading explained above including the limits as a negation but this at some stage is

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<sup>42</sup> Empirical philosopher who lived between 1711-1776, compared to Kant who lived between 1724 and 1804.

overcome. Firstly, the subject is limited in the sense that she cannot know some things and this limit should not be exceeded. Secondly, the subject cannot know the object itself, but he knows it through experience, drawing a line between the subject and object but this is overcome by the experience, making our knowledge subjective. Thirdly, the subject, through reason, lifts the limit between the indefinite and definite of Plato. The reason deploys order and discipline to mediate both; the indefinite and definite and vice versa. The faculty of the reason makes the subject transcendental and the being the mediator; in between where the bounded limit is part of the human condition. Kant starts to see the limit not just as a negative or positive notion but as a complex one influencing the way we operate and understand things. The concept of “transcendence” as opposite to immanence is crucial in his philosophy, but also for future thinkers and was announced in its emergent state by earlier authors.

### Human Finitude<sup>43</sup> In Heidegger

As with Kant, Heidegger (1889-1979) believed in human finitude and the specificity of this “finitude” is intrinsic to his existential approach. This is portrayed in his book *Being and Time*, to the point that some called it a “philosophy of finitude”,<sup>44</sup> and it is at the centre of phenomenology. Heidegger defines phenomenology as “the process of letting things manifest themselves”<sup>45</sup> and Edward Relph proposes it as “a way of thinking that enables us to see clearly something that is, in effect, right before our eyes yet somehow obscured from us”.<sup>46</sup> Heidegger considers the etymology of phenomenology that it is composed of two Greek words: *Phainomenon* and *logos*. *Phainomenon* means “to show oneself” and is related to “self-manifestation”. We only have access to things<sup>47</sup> through experience and “things show themselves in many ways, depending on the modes of access we have to them”.<sup>48</sup> Since things don’t always show themselves as they are, phenomenology cannot be simply description.<sup>49</sup>

<sup>43</sup> Human Finitude is borrowed from Oren Magid’s paper ‘Heidegger on Human Finitude: Beginning at the End’, *European Journal of Philosophy* 25:3 (2016), pp.657-676.

<sup>44</sup> *Ibid.*, p.657.

<sup>45</sup> Cited by Edward Relph in ‘Geographical Experiences and Being-in-the-World: The Phenomenological Origins of Geography’ in *Dwelling, Place and Environment. Towards a Phenomenology of Person and World* ed. by David Seamon and Robert Mugerauer (Malabar, Florida: Krieger Publishing Company, 1985), pp.15-32 (p.15).

<sup>46</sup> *Ibid.*, pp.15-16.

<sup>47</sup> Heidegger uses the word *Zeug* which has no direct translation to English, but it is similar to stuff; “entities that surround us”. At some points it takes the word “equipment”. Heidegger avoids the words object and thing. See Stephan Käufer and Anthony Chemero, *Phenomenology. An Introduction* (Cambridge, UK and Malden, USA: Polity Press, 2015), p.51.

<sup>48</sup> Dermot Moran, *Introduction to Phenomenology* (Abingdon, Oxon & New York: Routledge, 2000), p.229.

<sup>49</sup> This refers to Husserl mode of access to things through descriptions based on intuition. *Ibid.*, p.229.

Rather phenomenology seeks meaning, which is perhaps hidden by the entity's mode of appearing or revealing itself or uncovering. "The things always present themselves in a manner which is at the same time self-concealing".<sup>50</sup> Heidegger uses the term *logos*<sup>51</sup> "to emphasise the link between phenomenology and truth, between appearing and the revelation of truth". Truth (*aletheia* in Greek) refers to manifesting what in some way it is hidden and the term *logos* "letting and entity be seen from itself". The entities/things are "dis-closed, un-covered, re-vealing" through engagement and our experience of them.<sup>52</sup> Thus, humans' finitude-for this study based on Heidegger- consists of three aspects:

1. "Being-in-the-World"

Heidegger believes that our existence takes place "in-the-world". Anything and everything which exists is part or has an environment (world), hence this is a limit to our existence and being. This "Being-in-the-World" conditions the mode of Being<sup>53</sup> and is characterised and limited by three notions that Relph presented.<sup>54</sup> The first (a) "Being-in", relates to a relationship that is concerned and marked by the bonds "of work, affection, responsibility, interest and memory".<sup>55</sup> The second (b) "Being-in-the-World", is understood as an entity where subject and object are one things defining the self and finally (c) "in-the-World", the world is-when and where- we start our existence, and it is "the holistic background we disclose us"<sup>56</sup> and we are unaware of it due to our involvement in it.

2. Forms of existence

Heidegger distinguishes between two types of existences:<sup>57</sup> (a) *zuhanden* (available, readiness-to-hand) and (b) *vorhanden* (occurrentness, presence-at-hand). Available and readiness-to-hand refers to things such as equipment that we meddle, engage or manipulate with, within our means and ends. This refers to the things that we reach to act with, such as when we access a keyboard or a hammer for specific ends. On the contrary, *vorhanden* refer to things that disclose

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<sup>50</sup> Ibid., p.229.

<sup>51</sup> *Logos* is usually defined as "'word', 'concept', 'thought', but Heidegger translates it as 'discourse' ", etymologically meaning "to bind together", "to gather up" "into a unity or synthesis, and 'to let something be seen' " Ibid., p.229.

<sup>52</sup> Ibid., pp.229-230.

<sup>53</sup> It is defined by the transcendental features defining Dasein and the human condition explained by Heidegger in the notion of 'Dwelling' published in his book *Building, Dwelling and Thinking*, pp.143-159 and succinctly explained by Moran based on the first source, pp.238-239.

<sup>54</sup> Relph, p.17 based on his reading of Heidegger's book *Being and Time*, pp.78-79.

<sup>55</sup> Ibid., p.17.

<sup>56</sup> Käufer and Chemero, p.78.

<sup>57</sup> Moran, p.233; Relph, pp.18-19 and Käufer and Chemero, pp.54-57.

as mere things; simply being there. The keyboard is occurrent when we stare at it without relating it to our practical knowledge or putting it to use. Thus, there are two types of beings that a thing can display. The available being is the basic mode of “being-in-the-world” and things first present this mode.

### 3. Temporarily bounded

Human existence is temporal taking place in time. “Temporality is the basic structure to the self”.<sup>58</sup> Temporality is finite, and the present derives from a positioning in relation to the future and the past, hence the present is determined by the other two. Any action in the present is like Janus: one face looks towards and provides for the future and the other face is orientated to the past determining the now, ensuring nothing is omitted.<sup>59</sup> Thus, “the past and future ‘release’ the present”:<sup>60</sup> an in-between.

Accordingly, this research studies the limit within the above conditions. The limit is experienced by “Being-in-the-World”. The descriptions of the limit presented the limit at-hand and available but also the occurrent. The experience of the limit revealed a limit available at one point and then becoming occurrent at another moment. A view simultaneously displayed available and also occurrent limits. The experiences of the limit are spatio-temporal; the limits have a spatial configuration and one limit precedes and succeeds others.

## The Philosophy Of The Limit

Kant places Being in the centre, whereas Heidegger places it in the world. Trías however, places it in the limit.<sup>61</sup> With this slightly different position, Trías (1942-2013)<sup>62</sup> proposes a framework

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<sup>58</sup> Käufer and Chemero, p.68.

<sup>59</sup> Rüdiger Safranski, ‘Parting with Catholicism and Laws of Free Fall While Falling’ in *Martin Heidegger: Between Good and Evil* (Cambridge, Mass, London, England; Harvard University Press, 1999) ,pp.107-125 (p.115).

<sup>60</sup> Käufer and Chemero, p.68.

<sup>61</sup> Kant places Being in the centre in the sense that we only know things in the way they present themselves to us, distinguishing between phenomenon and noumenon. Heidegger furthers this approach, reflecting upon “phenomenon” based on our conditions of beings in the world defining the manner in which we live and apprehend it. Then, Trías proposes the being as limit who exists from the limit.

<sup>62</sup> Eugenio Trías i Sagnier was a Catalan, Spanish philosopher who dedicated a great part of his work to the “philosophy of the limit”. He was born in Barcelona where he grew, lived, worked and died. Part of his university education took place in Barcelona, Pamplona, Madrid, Bonn and Colonia and he worked for a limited period of time in Argentina, Brazil and mainly in different institutions located in Barcelona. In the Spanish scene, he is considered the most outstanding thinker of the second part of last century since José Ortega y Gasset (1883-1955). He was awarded the most prestigious national awards and recognitions and in 1995 was awarded the International Friedrich Nietzsche Prize and other awards in South America. Most

distinct to the one proposed by Heidegger, but without these being completely contradictory. Trías understands the subject<sup>63</sup> as limit, simultaneously dividing and joining two fields. This limit may be an in-between as this limit has its proper domain, which is inhabited, and the subject belongs to it. Two motives make Trías the principal philosopher in this research. Firstly, because his philosophy is based on the limit with a positive stance and the limit is in the human condition as he accepts the proposition of the *ego cogito/sum*<sup>64</sup> as “the limit and border (...*del ser que es límite y frontera*)”.<sup>65</sup> Secondly, due to the pragmatic dimension of his thinking through reflections by deploying metaphors, this allows him to swap smoothly between conceptual and concrete thinking and he refers to physical existences that, when related, seem to parallel the foregoing accounts of the limits in experience.<sup>66</sup>

In his book *The Limits of the World (Los Límites del Mundo)*, he stresses that since Descartes, modern philosophy can only be critical and therefore methodical,<sup>67</sup> whilst a priori it has to define the limits of knowledge and what this can reach, as Kant already proposed. Reason has to define the possible reach of knowledge,<sup>68</sup> identifying its limit by locating its siege,<sup>69</sup> the edge. Just after this question of defining the limit, Trías argues that the subject can inhabit that edge; the inhabitation of the here, that “critical reason” encourages the abandonment of the

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of his work is available in Spanish and some articles in Catalan. His work has not yet been translated into other languages, thus posing a challenge in translating some of the terms he adopts as they often lack a direct correlation to English.

<sup>63</sup> Trías does not refer to the person as being, but neither does he make a distinction between subject and object.

<sup>64</sup> This defines the foundations of the method indispensable for a critical philosophy and this will determine the journey; the ladder to follow to reach the limit. Thus, Kant bases his philosophy on the transcendental method, Hegel on the dialectic method, Heidegger on the phenomenological analytical-existential method and Wittgenstein on the structural or logic-linguistic method. In all methods, the subject is differentiated leading to different venues and outcomes but all of them share that the explorations are progressive and interlaced (Eugenio Trías, *Los Límites del Mundo* (Provença, Barcelona: Ediciones Destino S.A., 2000), pp.46-47).

<sup>65</sup> Eugenio Trías, *Lógica del Límite* (Provença, Barcelona: Ediciones Destino S.A., 1991), p.31.

<sup>66</sup> For over 17 years he taught in the school of architecture in Barcelona and this may have encouraged him to think and refer to plastic arts, music, filming and architecture. He bounds between abstract and tangible thinking which is familiar to architects as part of their design process making his philosophy appealing to designer.

<sup>67</sup> Trías, *Los Límites del Mundo*, p.39.

<sup>68</sup> Reason is divided in three directions: 1. Nature, 2. The Subject (I), and 3. The Divine but before this it has to define the limits of knowledge.

<sup>69</sup> Trías uses the word *cercos* which does not have a direct translation, but refers to enclosure, fence, hedge, rim, halo, loop... The word *cercos* refers more specifically to the line that defines the limit similar to the line of the horizon. The noun *cercos* predicates as *cercado* (adjective) and the verb is *cercar*. Therefore, the term siege is used to denote *cercos* as besiege can correlate to *cercar* and besieged to *cercado*. Translations assisted by Reverso Context, (Softissimo Inc.) <<http://diccionario.reverso.net/espanol-ingles/cercos>> [accessed 11 May 2018].

“beyond”.<sup>70</sup> Therefore it is essential that there is a proper incursion “from the knowledge into the knowledge”, defining its limits from the inside and what can be reached in terms of knowing and saying. This will allow us to “legitimize the incursion, the unfolding and the development of the saying and knowing of what it is beyond those [referring to what it can be said and known] limits”.<sup>71</sup> Therefore, it is from that inside, the limit, where the here and beyond can be known.<sup>72</sup>

Trías, influenced by Plato, established a tripartite method: ascent, repose/rest, return. The first phase is phenomenological, based on what we can understand based on our experience in the world, of the limit aiming to identify the foundation of the limit. Then comes the exploration and discussion of that foundation to access what transcends (to explore a thing that was hidden); the limit. And the final phase is the return, back to the beginning, the foundation, to the phenomenon but inferred from the repose; the transcendence (what it was hidden) in the immanence (from within) unfolds. In this phase, how the concept applies and relates to all fields such as science, religion and art, is tested. This structure correlates with Plato’s ‘Myth of the Cavern’<sup>73</sup> and his method denotes working as a spiral where he goes over and over things from different locations, making him to re-define over and over, accepting and moving forward with his discourse. He states that the beginning is very important in determining the method.

The following section presents, in a succinct and perhaps precipitated way, the general idea and some of the qualities of the limit in Trías. This is followed by the explanation of the limit as a spatial condition; the border. It ends by presenting Trías’ philosophy, introducing the sieges, the ontological triangle, categories of the limit and the symbol and how this operates.

### **A Brief Definition of the Limit by Trías**

The concept of the limit for Trías contrasts with the notion of the Spanish philosopher Ortega y Gasset (1883-1955) who defined it as “the limit is what limits, a restriction and a barrier, an obstacle and an obstruction. It is what divides, the index of a separation. It is just seen from this side of the limit, from the confined perspective, from the absence and from the scarcity”.<sup>74</sup>

<sup>70</sup> He understands the metaphysics to be the first philosophy.

<sup>71</sup> Trías, *Los Límites del Mundo*, p.44.

<sup>72</sup> *Ibid.*, p.64.

<sup>73</sup> The “myth” presents the three phases that the inhabitant of the caverns goes through. The first is defined by the ascension from the darkness of his dwelling/abode to the brightened outside; when this is reached he has to adapt to the new conditions (clarity) and colonise the new horizontality of the territory and finally he returns to the verticality of the first phase in opposite incline, back to the darkness.

<sup>74</sup> Ortega y Gasset (1883-1955) planned a series of essays to be published under the title “Meditations” (*Meditaciones*) and among them he left drafted the underlying content of the ‘Essay on the Limitation’



Perhaps this is what most people, including philosophers, associate with this term. Conversely, Trías presents the limit as a two-faced concept where the *limes*-limit and the *limen*-threshold are concurrent as already experienced in the kerb, the wall limiting the inner open space of the block or the linkage-entrances in *L'Il·la*. He emphasises the positive stance of the *limen* from which to view the two sides, from where the two-faces open towards two worlds. He defines it "as space and place susceptible/likely to be inhabited. It is a narrow and a fragile strip, an isthmus. Although in that margin there is enough space for existence to take place".<sup>75</sup> Therefore it is a relative term; a double limit allowing for an in-between; an inside, a proposed space from which to exist as experienced with the façade, the kerb, the linkage-entrances and the superblock. We are the limit, we exist and experience from the limit, therefore it has a spatio-temporal dimension (the experiences reveal how the place was defined by the limits and how these were placed by the person). This double limit presents an asymmetry where the two edges are distinct as they react to constant and changeable pressures of pushing and pulling from the beyond, which are different in each opposite side. This was experienced in all case studies though the intensity of the pressure/s and source/s varied between conditions. The limit is ambiguous and fluctuates, correlating with the experience sometimes manifested with some sort of rhythm. It is reflective in the sense that it is contagious and contaminates from "the beyond" which is defined from inside. The limit is positive otherwise it wouldn't exist as a concept and Trías' philosophy is based on this concept. It is worth emphasising that many of the above terms have already emerged in the experience of the limit and this study may help to clarify them.

### **A Representation of the Limit: The *Limes* as Border**

Trías opens his book *The Logic of the Limit (Lógica del Límite)* by explaining that "The Romans called the inhabitants of the *limes* the *limitanei*. They were the army of the bordering sector (*sector fronterizo*)<sup>76</sup> who camped in the *limes* of the imperial territory, based in that space, and simultaneously devoted themselves to defend and cultivate it".<sup>77</sup> The adjective *fronterizo* (of the

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(*Ensayo Sobre la Limitación*). Ortega thought on the limit in relation to the Spanish precarious situation, in relation to Europe and modernity but aiming to think the national reality through its conceptualization. His ambition was to define an appropriate vocabulary to think in Spanish. Muñoz and Martín eds, p21.

<sup>75</sup> Eugenio Trías, *La Razón Fronteriza* (Provença, Barcelona:Ediciones Destino S.A., 1999), p.47.

<sup>76</sup> Once more the Spanish word *frontera* and its derivatives translate well into French, but it is more challenging in English. For *frontera*, I employ the word border and its derivatives in line with terminology used in geo-politics and geography on boundaries between countries; border, that will be discussed in subsequent sections.

<sup>77</sup> Trías, *Lógica del Límite*, p.15.

frontier) from the noun *frontera* (frontier) refers to the condition of the limit as understood by Trías and it is a central term in his philosophy. *Fronterizo* refers to a specific location; situated on/ in the border, at the edge and in opposition to the centre. The Romans provided a name, *limen*, created a location and a (not the) place,<sup>78</sup> and using the generic name of the thing itself implied specific and own characteristics. This is reinforced by calling its inhabitants *Limitanei*, who are thus rooted in the location, defined by the condition of being there; inhabiting<sup>79</sup> (*inhabitare*) the space. The *Limitanei* have two functions: one is directly related to the physical location of being at the edge –on the line susceptible to be invaded- needing to be defended and the second function refers to cultivating (*colere*). This *colere* refers to converting the space for growing/ cultivation and worship supporting basic human needs. Then, a colony emerges that is rooted in a place with particular characteristics, defined by the location and functions that this brings and the being; inhabitation. Therefore, these *limes* cannot be just a line defining the point where two things meet or where one finishes and the other starts. It must be a strip comprising an inside that is susceptible to inhabitation in the double sense<sup>80</sup> and Trías' term *fronterizo* refers to that being from and in the *limes* that relates to the anthropological and geographic<sup>81</sup> concept of liminal and place correspondingly.

As Trías reminds us, *limes* suffer tensions. On the one hand, the Barbarians from their side besiege the area imposing a diffuse and fluctuating siege. They are a threat, attracted by what is beyond, yet sometimes they would enrol in that farming/agrarian army “becoming part” of the colony. Whereas on the other hand, the powers of the governmental centre would fear the rebellion of a glorious General of the *limes* who recognised that from that strategic location he could gain power and nominate himself emperor. Thus, the *limes* were subjected to three sieges (*cercos*): The siege that the Barbarians subdued directly to the *limes* and indirectly to the empire, the siege the empire subjugated to the friends-enemies inhabitants of the *limes* and finally the (double) siege that the *limes* and *Limitanei* imposed to the Barbarian (over there) and to the civilization (over here). These "over here and there" imply a double limit with non-symmetrical condition and in continuous fluctuation. The "over here" refers to the world with beings susceptible to reason, language and culture in opposition to the "over there"

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<sup>78</sup> Tim Creswell, *Place, A Short Introduction* (Malden, USA; Oxford, UK; Victoria, Australia: Blackwell Publishing, 2004), pp.2-3.

<sup>79</sup> The inhabitation is partially defined by the location providing specificity of the inhabitants and defining the essence and uniqueness of “the place”.

<sup>80</sup> Inhabited in a double sense referring to being; defending and cultivate. In a double sense also referring to the location and being.

<sup>81</sup> There is a growing literature in politic-geography on the border between countries and the artificial, and in many cases, imposed line between countries; frontier is subjugated to pressures from the two sides and sometimes from a third side.

inhabited by the Barbarian and defined by wildness, formless, no farming; without law.<sup>82</sup> “The world (where we exist) had, then, in the *limes* its border (*frontera*), border between reason and insanity (sinrazon), between culture and nature, between law and jungle”. Thus, the *limes* is subdued to those dichotomies becoming “a tense and conflictive space of mediation and connection”. In the *limes* is where the Roman and Barbarian get together as well as separate,<sup>83</sup> where exchanges between Barbarians and Romans took place. Hence, the *limes* is also a hinge (*grezne* in German) understood as a join and a disjunction.<sup>84</sup> Thus there is a reflection where the limit is contagious and contaminates in the sense that the Barbarian and the Romans influence the *Limitanei* and these determine their neighbours at various levels.<sup>85</sup> The *Limitanei* are Roman, but the fact of inhabiting (being in) the *limes* provides them with a specificity differentiating them from the Roman of the centre, given its position as well as sharing some synergies with the Barbarians.<sup>86</sup> Therefore, it is from the *limes* that the extreme sieges can be mediated and related.

In Trías, the limit is conceived as an axis from which everything evolves. For his ancestors, the limit is a barrier that cannot be trespassed. The difference lies in that the subject inhabits the limit (an ambiguous and changeable strip), the *limes* and the subject is the limit and border himself; the bordering subject.<sup>87</sup> He presents a being as a limit in the limit who operates within the multitude of sieges related to categories defining a fine balance between the immanence, transcendence and transcendence in the immanence nature of the subject.

### The Triple Sieges

The term siege (*cerco*) presented above in the limit is fundamental in Trías’ philosophy and is translated into a conceptual framework that is intersected with seven categories. The siege has double significance: topological and military. The topological meaning denotes to besiege; drawing the limit associated with separating<sup>88</sup> what is besieged and consequently appearing as an outside and only the one on the inside can trace it. The military meaning refers to

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<sup>82</sup> Trías, *Lógica del Límite*, p.16.

<sup>83</sup> *Ibid.*, p.16.

<sup>84</sup> *Ibid.*, p.397. It is worth noting that Trías deployed the term copulation (*copula*) instead of join.

<sup>85</sup> Trías, *La Razón Fronteriza*, p.48.

<sup>86</sup> José García Leal and José F. Zuñiga, *El Intelectual y su Memoria. Eugenio Trías, Las Puertas del Pasado* (Granada, Spain: Editorial Universidad de Granada & Campus Universitario de Cartuja, 2014), p.32.

<sup>87</sup> Trías defines this in his books, *The Limit of the World (Los Límites del Mundo)* alongside *Philosophy of the Future (Filosofía del Futuro)* and *The Philosophic Adventure (La Adventura Filosófica)*.

<sup>88</sup> Something separates but also something that joins/copulates referring to hinge as an element with double and intricate meaning. He deploys the analogy of the door at different points including the symbol.

harassment or pursuit (*acoso*) and to besiege (*asedio*) to protect those inside and for those to receive help, referring to the dynamics between the two who are both submitted and resisted. Both meanings refer to a plurality producing more than one limit, more than one line. The sieges are traced from the world referring to the totality of what exists. Everything is inscribed in it; including the experience of objects, its conceptualization, technical manipulation and so on. Trías defines three sieges, establishing the topology of the limit where these unfold and are revealed:

- a. Siege of Appearing (*Cerco del aparecer*): it is where we experience-the phenomenon-, genuinely the “world”. It is where mundane (the everyday) events (physic, linguistic, passion or rational) take place.
- b. Bordering Siege (*Cerco fronterizo*): it denotes the bordering nature of the being representing the being as the limit.
- c. Hermetic Siege (*Cerco hermético*): this refers to the logos<sup>89</sup> closed in itself that it can be thought/reasoned but not experienced or known. It refers to the arcane, divine... what cannot be seen or reached.

<b>Immanence Transcendent</b>	a. Siege of Appearing ( <i>cerco del aparecer</i> )	Sensible	World
	b. Bordering Siege ( <i>cerco fronterizo</i> )	Conceptual	Cogito in the world
	c. Hermetic Siege ( <i>cerco hermético</i> )	Enclosed in itself (inconceivable, enigma).	Divine/Reason

Thus, this idea of the siege implies an immanence-transcendental ontological character of the limit. The subject is the mediator –the hinge- between what appears (the world) and what it is hidden (the reason); between what it is known and what it is just thought.

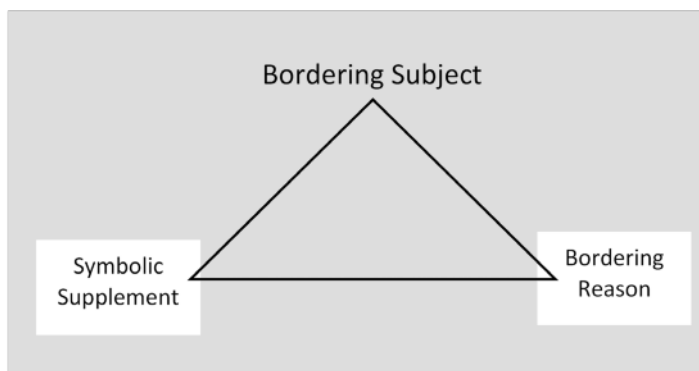
### **Ontology of the Limit**

From the disposition of the sieges, Trías defines the ontology of the limit of the bordering subject determined by the bordering reason<sup>90</sup> and the symbol also of the border but distinctive

<sup>89</sup> Logos referring to reason as “the capacity of comprehension and projection, propositional power/ability” (Trías, *Los Límites del Mundo*, p.73). Trías relates to Wittgenstein in that the being is mediated with the speech/language.

<sup>90</sup> Bordering reason differentiates from other reasons like the analytical, dialectic, linguistic,... reason. See

from the symbol in Kant or Carl Jung (1875-1961). These two are interlinked and intersected in the bordering subject, creating the trilogy (bordering subject, bordering reason and symbolic supplement). Reason refers to language which is capable of producing meaning and sense, presenting an interpreted world. This reason is critical and auto-reflexive from the realm where meaning and sense is produced, and these encounter a “Major Limit” which can only be trespassed by the hermeneutic mode and the symbol. This Major Limit can only be overcome as in the case of a city wall, where the doors inserted in the wall provide access to the inaccessible, which in this case is the symbol. Trías refers to the idea of the symbol in Kant (indirect- not intuitive- analogic) as a way to represent the supra-natural (God, Soul and World), where there is a limit between what it wants to be symbolised and the symbol. This is used in religion but also in art.<sup>91</sup> Therefore the bordering subject at the edge of the divine/reason and the world finds sense and meaning and “its intelligence provides symbols to exceed that limit and to expose what transcends”,<sup>92</sup> the symbol as mediator.



## The Categories

Trías understands categories as per Aristotle; in relation to the essence of the being. He establishes seven categories which are the bases of the theory of knowledge defining the essence of the subject; in this case the bordering subject. “The subject is the limit between the categorical and the transcendental; between the table in which the categorical unfolds and the thing (=x) that constitutes the reference of the mystery”.<sup>93</sup> These categories will help to understand the subject, experience, art and define the nature of the symbol.

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Eugenio Trías, *Ciudad Sobre Ciudad. Arte, Religión y Ética en el Cambio de Milenio* (Provença, Barcelona: Ediciones Destino S.A., 2001), p.30.

<sup>91</sup> Ibid., pp.32-35.

<sup>92</sup> Ibid., p.35

<sup>93</sup> Trías, *La Razón Fronteriza*, p.408.

1. **Matrix** – womb / matrix (mystery: natality as beginning and mortality as end): pre-mundane nature. We are in the world, but we had a preceding life; “intrauterine”. We do not remember it, but it is part of the physical experience; it is in the dark transcended (background, root), from which all incidents/issues appear. In the same way, there is death and only human beings are aware of this.
2. **Existence:** The mundane (worldliness) is constructed on the roots of the darkness. Through existence, we are in the world; in the siege of appearing (*cerco del aparecer*). The existence of what takes place, which supposes a subject; *cogito*. There is an experience because there is a subject and the subject exists through the experience.
3. **Limes:** The subject, COGITO, is the limes, limes as Wittgenstein says; the subject is not part of the world (or s/he is not just that) but a limit of the world. Thus, as part of that nature, or bordering essence; the subject is limiting/bordering (*fronterizo*), the flesh of the limit.
4. **Logos:** This refers to the correlation between subject-world, limes-existence- that it is reduced to a passive mundane/everyday occurring/happening (*acontecer*) with no subjectivity. The subject is object of the reason and concerning the language; it is not just sensed but also thought and said. It is colonised by the limit; using instruments of the intelligence and language.
5. **Bounding reason** (critic plus reflective): It tries to reach the hermeneutic keys to access the arcane. This displays a confrontation between the speculative effort to interpret (hermeneutics) and the resistance of the thing itself (hermetic, impenetrable). No operation can clear the big unknown. Hence, the category presents an irrefutable opacity.
6. **Symbol:** This opens a dialogue between philosophy and religion. In contrast to the structuralism which proposes a binary structure, Trías proposes a tripartite system. The symbol has a figurative and formal dimension.
7. **Space of the limit**, being in the Limit: In order to understand and read the limit in its positive conception, this needs to exist. This space exists between the worldliness of phenomenological data and the transcendent enigma of the hermetic. In between these two appears the space of the limit or border. Without this liminal space (*limen*) the experience of the other two would not take place. The siege of appearance shows the “near here limit” and the hermetic siege is the limit of the “beyond itself”. Thus, this space is a hinge that cleaves as well as unities them; suitable to be opened or closed.

	Sieges	Categories		Type	Relating to the Symbol <sup>93</sup>
a.	<b>Siege of Appearing</b> (symbolizing)	<b>1. Matrix</b>	Pre-worldliness experience	Phenomenological Worldliness Immanence	What needs symbolising
		<b>2. Existence</b>	Worldliness experience		
		<b>3. Limes</b>	Cogito (dwelling)		
		<b>4. Logos</b>	Limes – Existence Subject – World Passive/stimulus to senses + thought & said.		
b.	<b>Hermetic Siege</b> (symbolized)	<b>5. Bounding Reason</b> (critic +auto-reflective)	Critical – auto- reflexive To think – To say	Hermeneutic Unworldliness What transcends	What is symbolised
		<b>6. Symbol</b>	Tripartite system		
c.	<b>Bordering/Limiting Siege</b>	<b>7. Space of the Limit</b>	Liminal territory; Being in the limit	Hinge, in-between, what separates and mediates; between what is phenomenological and what is transcendental	Unifying the symbolising (material part or mundane of the symbol) and symbolised (referring to ultra-humane)

Trías applies and validates the categories above with the ontology based on the three domains that are interdependent and he applies them to the different fields as religion and art. At the end of his work, he reaches a system for the limit.

## The Limit in Anthropology

This second part is devoted to the limit related to the Latin *limen* and the twofold Greek terms *aperion-peras*. Firstly, the liminal, the middle part of rituals, common to all cultures and civilizations, is introduced based on Arnold van Gennep and Victor Turner. Thereafter, the seminal essay ‘Door and Bridge’ by Georg Simmel is presented and complemented with Heidegger’s reading of the bridge, grounded on his conception of the “thing” able to “gather and place”. Lastly, the city wall and the associated rituals to inaugurate the Roman city are presented, referencing the work by Joseph Rykwert and Richard Sennett, which present synergies with Trías’ notion of the limit.

<sup>94</sup> This column is based on Alberto Sucasas Peón’s paper ‘Pensar la Frontera. La Filosofía del Límite de Eugenio Trías’ published in *Eugenio Trías, El Límite, El Símbolo y las Sombras*. (Barcelona: Ediciones Destino, 2003), p.337

### From the Limit to the Liminal

Heidegger explains the boundary in relation to the Greek term *peras* contrary to *aperion*, boundless whereas Trías characterises the limit by a temporal, fluctuating and compromising balance between *limes* and *limen*. In contrast, Szokolczai<sup>95</sup> emphasises the quality of removing the limit implicit in the term *limen*: “go through something”, stripped from negative connotations and which is the root of the adjective “liminal”.<sup>96</sup> This positive stance is embraced in the field of anthropology, correlating with the definition presented in the Oxford English Dictionary: “1. [...] of or relating to the *limen*” (threshold) and “2. characterized by being on a boundary or threshold, by being transitional or intermediate between states, situations, etc.”,<sup>97</sup> denoting spatial and temporal dimensions. Liminality derived from liminal is considered as “universal concept: cultures and human lives cannot exist without moments of transition, and those brief and important spaces where we live through the in-between. Such transitions mark us, they stamp our personalities, and that is the way it will be always”.<sup>98</sup> The term liminal was initially introduced by the ethnographer and folklorist Arnold van Gennep (1873-1957), who in 1909 published “*Les Rites de Passage*” which was not translated into English until 1960 and the term was lost until 1967 when Victor Turner (1920-1983) brought it to light in his essay ‘Betwixt and Between: The Liminal Period in Rites of Passages’ in *The Forest of Symbols*.<sup>99</sup> Turner applied the term liminality beyond the religious field and also introduced the term liminoid in his essay “‘Liminal’ to ‘Liminoid’”, in *Play, Flow and Ritual: An Essay of Comparative Symbology’* in *Process, Performance and Pilgrimage. A Study in Comparative Symbology*<sup>100</sup> published in 1979, in relation to postmodernity. The terms of liminal and liminality in recent years have permeated different disciplines and a number of socio-political-anthropologists such as Szokolczai, Hazel Andrews, Les Roberts, Thomassen and Wydra, to name a few, have published research on the theoretical stance and its application in contemporary situations.

<sup>95</sup> Szokolczai is a sociologist with an interest in anthropological social theory and taking a theoretical pluridisciplinary approach to his research.

<sup>96</sup> Szokolczai, p.11.

<sup>97</sup> “Liminal” adj. Oxford Dictionary of English. <[www.oed.com/view/Entry/108471](http://www.oed.com/view/Entry/108471)> [Accessed 12 May 2018].

<sup>98</sup> Bjørn Thomassen, *Liminality and the Modern: Living Through the In-Between* (Surrey, UK and Burlington, USA: Ashgate Publishing, 2014), p.4.

<sup>99</sup> Thomassen (Ibid.) explains the intricacies and controversies in academia around the ‘Rites of Passages’. He presents van Gennep’s work and others view including Émile Durkheim, Marcel Mauss and more. Also presented is how van Gennep’s work was considered by Lévi-Strauss and then how Turner frees van Gennep’s work from the restraints of structuralism.

<sup>100</sup> Victor Turner, “‘Liminal’ to ‘Liminoid’”, in ‘Play, Flow and Ritual: An Essay of Comparative Symbology’ in *Process, Performance and Pilgrimage. A Study in Comparative Symbology* (India: Concept Publishing Company, 1979), pp.11-59.



Van Gennep noticed that humans move from one group to another, from one situation to the next, from one existence to the following, making a progression of stages like birth, puberty, marriage, fatherhood, different occupations, promotion and so on. All have a beginning and an end, and they happen in all societies and cultures. All these situations have associated an assortment of “ceremonies” that help the individual, collective or society to advance from one position to another. These situations are just particular moments in life which may vary from something that simply punctuates our day, something outside the norm, or they may be a much bigger situation with longer duration or impacts, such as puberty. These situations take place in space and through time, defined with a beginning and an end. These situations connect and are a transition between two different stages, similar to the *limes* and *Limitanei* in Trías. Turner refers to these situations as “betwixt and between”, denoting sequential time and space that is inhabited with specific characteristics, differentiating the individual, collective or society going through a situation reminding us of Trías’ *Limitanei* with their own identity. Though in Trías, this identity comes from within (the bordering subject) whereas for both Van Gennep and Turner, it is defined by the subject himself going through a transitional period that is spatio-temporal (time within the subject as in Kant’s conception). These situations create uncertainty and anxiety as the subject/individual is invisible (we only see what we are used to see) and temporally suspended from society similarly to Trías’ tense and conflictive space of mediation and connection. This marks a period of unpredictability and changes (the fluctuating limit according to Trías), but is also related to the probability of things happening and a time of hope supporting creativity and differentiation. Analogous to the limit, the liminal is double and asymmetrical as the two things at each side are different. Additionally, the liminal enables, formalises and recognises the transition; the transformation. The liminal is, as the limit can be, the hinge with the double nature of disjointing and copulating.

Van Gennep calls the “ceremonies or rituals”<sup>101</sup> rites of passage, and establishes a tripartite classification: rites of separation, rites of transition or margin rites and rites of incorporation and these may have different relevance and elaboration in different cultures and can be modified through time and vary from situation to situation. Rites of passage are universal following certain aspects that act individually but collectively.<sup>102</sup> Van Gennep presented a flexible framework composed of three stages, allowing to move from one situation to another; pre-liminal period (rites of separation), liminal period (rites of transition) and post-liminal period

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<sup>101</sup> Turner differentiates between ceremonial and ritual: “ritual is transformative, and ceremony is confirmatory”, Thomassen, p.95.

<sup>102</sup> Ibid., p44.

(rites of incorporation) and again these three may not be equally represented or developed.<sup>103</sup> Hence, the liminal refers to the middle stage of ritual passages but the tripartite structure often is reduplicated in the middle period with a parallelism to the three sieges of Trías. The liminal period correlates with the bordering siege, the pre-liminal period to the siege of appearing and the post-liminal to the hermetic siege. Obviously, between them there are differences.

Turner describes liminality as “cunicular” from the Latin *cuniculus* meaning rabbit but also burrow or underground passage,<sup>104</sup> and he defines it as “betwixt and between”<sup>105</sup> referring to a “transitional being” or “liminal-personae”<sup>106</sup> but it can also apply to a situation or object. Thomassen<sup>107</sup> takes Turner’s understanding of liminality and liminal experience and defines three types of subjects: individuals, collective groups and societies. The temporal dimension takes a tripartite classification: moments considered as short periods, periods taking place over weeks, months or years and lastly epochs referring to large periods of time such as decades or generations and he articulates that any combination between subjects and temporal dimensions can be found. Van Gennep dedicates a section of his book to *The Territorial Passage*, where he presents spatial boundaries as borderland, rivers, door, etc. as part of the *Passage of Rites* and specially applies to the liminal period. He talks of the threshold as a spatial passage converted into a spiritual passage.<sup>108</sup> Thomassen develops further Van Gennep’s initial points, stating that thresholds can be liminal spaces, but these can be extensive areas like “borderlands or even a whole country plus the in-betweens establishing once more a tripartite classification: 1. Specific places, thresholds; 2. Areas, zones like prisons, monasteries, sea resorts or airports;<sup>109</sup> 3. Countries or large areas.<sup>110</sup>

Thomassen supports Karl Jaspers’ reasoning on the dichotomy of centre-border<sup>111</sup> and agrees with Trías that important things happen in the in-between, or from it. The border of the country

<sup>103</sup> Arnold Van Gennep, *The Rites of Passage* (London, New York: Routledge, Taylor & Francis Group, 2004), pp.1-25.

<sup>104</sup> Hazel Andrews and Les Roberts, ed, *Liminal Landscapes. Travel, Experience and Spaces in-Between*, (Abington, Oxon & New York: Routledge, 2012), p.15.

<sup>105</sup> These terms correlate with transitions between states. And state relates to fixed, stable condition, in Victor Turner, ‘Betwixt and Between. The Liminal Period in “*Rites de Passage*”’, *The Forest of Symbols. Aspects of Ndembu Ritual* (London UK, Ithaca, USA: Cornell University Press, 1967), pp.93-111.

<sup>106</sup> Ibid.

<sup>107</sup> Thomassen in Andrews and Roberts, pp.24-25 and Thomassen, pp.89-90.

<sup>108</sup> Van Gennep pp.17-22.

<sup>109</sup> What Marc Augé refers to as no-place but also to all the studies in geopolitics and geography on state borders.

<sup>110</sup> Thomassen in Andrews and Roberts, p.26 and Thomassen, p.91.

<sup>111</sup> Thomassen, p.91-92.

is the area to watch; not the centre or the area beyond civilization but the border itself.<sup>112</sup>

Szokolczai refers to the case of two strong centres whereby a marginal zone appears near to the borders of both centres. If the powers or dynamics change between the centres, the marginal zone becomes liminal due to the in-between location, articulating both, and this may become a centre in its own right. The centre and the margin can be united by “in-between-ness” and this is reflected in the Hungarian language.<sup>113</sup> Nonetheless, some endorse that liminality is more than just “in-between-ness”.

### **The Limit as Threshold**

The sociologist and philosopher George Simmel (1858-1918), contemporary but older than Van Genep, in his paper ‘Bridge and Door’,<sup>114</sup> emphasises the importance of human beings able to connect and separate. These two are interrelated, nonetheless things need to be disjointed to be linked later. The act of building a path to link two places is subjective until the path is impressed on the surface becoming objective. The banks of the river are apart but linked. We need to link them in our thoughts to separate them again. Simmel contrasts elements that by their nature link and/or separate: the bridge and the door.

The bridge has an aesthetic value as it connects something that it is separated, fulfilling the physical aim but also making visible a concept. In the bridge, there is a correlation between separateness and unity. The bridge unifies the two separated points, making them visible and measurable. On the contrary, the door evidences the two sides of the double act of separating and connecting. Simmel points out how the human goes against nature when tracing the paths and also with the first hut defined a space from infinity and continuity, where “a piece of space was thereby brought together and separated from the whole remaining world”.<sup>115</sup> The doors link the defined space with the outside, “it transcends the separation between the inner and outer”.<sup>116</sup> The door can be opened or closed; it sets a boundary but also its freedom as the door speaks. The boundary can be removed, relating it to the concept of liminality; the door is the place where the being can stand connecting the finite with the infinite. Conversely, the bridge,

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<sup>112</sup> Ibid., p.92.

<sup>113</sup> Szokolczai, pp.23-24.

<sup>114</sup> Georg Simmel, ‘Bridge and Door’, *Theory, Culture & Society* 11 (SAGE, London, Thousand Oaks and New Delhi, 1994), pp.5-10. It was originally published in 1909 in German and translated in 1994 into English for the above publication and subsequently published in numerous places including Neil Leach, ed, *Rethinking Architecture: A Reader in Cultural Theory* (London, New York: Routledge, 1997), pp.69-79.

<sup>115</sup> Simmel, p.7.

<sup>116</sup> Ibid., p.7.

and also the path, links the finite with the finite, providing direction, security and certainty. However, the door links the finite (inside) with a direction to the limitless (outside) when leaving and vice versa when entering,<sup>117</sup> displaying an asymmetry as in the limit of Trías. Simmel states that our experience through perspective has lots to explain about this. The bridge suggests how human kind unifies separateness and the door suggests separateness of the uniformed.

Because the human being is the connecting creature who must always separate and cannot connect without separating—that is why we must first conceive intellectually of the merely indifferent existence of two river banks as something separated in order to connect them by means of a bridge. And the human being is likewise the bordering creature who has not border.<sup>118</sup>

Simmel, somehow in a timid way, considers the human being as a bordering subject differently but related to Trías' notion. Simmel not just only presents a complementary reflection on the bridge and door, but how, through experience, we interact and apprehend the things in the world and the world.

Heidegger, like Simmel, reflects upon the bridge. He presents it as a “thing”,<sup>119</sup> and in Heideggerian terms it means that it “gathers” in relation to its own existence. The bridge connects the banks of the stream but these also “emerge as banks” as “the bridge crosses the stream”.<sup>120</sup> Hence, the bridge “discovers” to us the banks, presenting them as “border strips”, one at each side of the stream and “disclose” the landscape beyond them, gathering.<sup>121</sup>

“The bridge *gathers* in relation to itself in *its own* way earth and sky, divinities and mortals”<sup>122</sup> involving disclosing and discovering as a virtue of a “thing”. The bridge is made of a material from the earth connecting to earth at each side and then extending to the distant horizon. It allows the person to cross comfortably, whereas the water notices the bridge yet is still

<sup>117</sup> Related to the *aperion* and *peras* introduced by Anaximander.

<sup>118</sup> Ibid., p.10.

<sup>119</sup> Heidegger distinguishes between object and thing. The thing is not a mere object but “something more than an object”. Instead it is an object that we encounter in the world and apprehend it through our experience. See Adam Sharr, *Heidegger for Architects* (Abingdon, Oxford and New York: Routledge, 2007) pp.28-29.

<sup>120</sup> This is in line with Simmel in that the bridge unites what has been separated, in this case by the stream.

<sup>121</sup> This is based on Heidegger's passage on the bridge described by Heidegger in ‘Building Dwelling Thinking’ in *Poetry, language, Thought*, pp.150-151. The terms “disclose” from “disclosedness” and “dispose” from “discoveredness” are borrowed from the interpretation of Heidegger's thought by Käufer & Chemero, p77.

<sup>122</sup> Heidegger, p151.

permitted to carry its journey crossing the bridge. When the person crosses the bridge, she is on earth suspended in the sky and floating above the water making this a special moment. The bridge changes the earth-sky relationship, enabling for discoveredness and disclosedness and defining her relationship with the surrounding. Thus, the bridge establishes and mediates, configures and re-configures, negotiates and re-negotiates her relationship with the world; it locates and provides a location. The location was not there before the bridge. Then, “a location comes into existence only by virtue of the bridge”. Heidegger also suggests that things, like the bridge, provide locations and can locate-places and able of placing-<sup>123</sup> allowing for space.

*Raum* [space] means a place cleared or freed for settlement and lodging. A space is something that has been made room for, something that is cleared and free, namely within a boundary, Greek *peras*. A boundary is not that at which something stops but, as the Greeks recognised, the boundary is that from which something *begins its presencing*. That is why the concept is that of *horismos*, that is, the horizon, the boundary. Space is in essence that for which room has been made, that which is let into its bounds.<sup>124</sup>

Hence, the bridge has made room for; therefore, it has generated a boundary. The bridge allowed the banks to emerge as banks taking *presence* and acting as immediate boundaries, able of placing. The bridge allows for other entities to display and some to reveal themselves as boundaries. These happen within the disclosedness of the background, within the extent of the earth. The bridge is itself a boundary from which things start their *presencing* and boundaries in the landscape determine concurrently the bridge taking *presence* due to its existence; gathering, placing. At the boundary of the extent of the earth, the sky is encountered, and the horizon appears. Heidegger refers to the idea of the horizon as it is a boundary that it is always there present in one way or another and even though continuously changes. The horizon is a boundary that locates, and it is prime in our experience of the world.

### **The Limit and the City Wall**

Trías, as well as referring to the ambiguous border of the empire, also refers to the more tangible limit of the city wall and its implementation. The legend of the foundation of Rome recalls that a furrow was ploughed with a bronze plough carried by a white ox harnessed on

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<sup>123</sup> Sharr, pp.50-52, explains the interpretation of “Ort”, “Platz” and “Raum” into English “location”, “place” and “space” by Albert Hofstadter contrasting his reading. Sharr translates “Ort” and “platz” as place and considers *platz* nearer to site or area than *orth*. He also points out the versatility of place in English as it admits “to place” in contrast to English or even Spanish.

<sup>124</sup> Heidegger, p152.

the outside and a cow harnessed on the inside symbolizing respectively safety and fertility in a way that the earth would fall to the inside. If the earth fell to the outside, the founder's follower would throw it to the inside. Remus jumped over the furrow, thus infringing it as it was sacred and so Romulus killed him.<sup>125</sup> This furrow was sacred, as well as the area limited by the fallen clods on the inside and this strip of land was called the *pomerium*, a contraction of *post moerium* (behind the wall). Along the *pomerium* neither buildings could be built, nor military activity happen, nor could burials take place demarcating a strip that was defined by stone markers. When he reached a place for a planned gate, the founder would take the plough out of the soil and carry it to the place where the wall would start again, and this was not considered sacred as dead bodies, goods and mundane things would traverse it.<sup>126</sup> Rome only existed within the *pomerium* and anything beyond was the territory of Rome. The line of the furrow defines and takes possession of the place and the gap defines who can transgress it; both enabling "distinctiveness" and "otherness".<sup>127</sup>

Trías reflects upon the city wall as a limit and the doors with their bolts and hinges as the link with "the behind the wall". The wall is not just a line. It is, once more, a strip that in the old days was not just about protection but existence (to allow for existence). In this situation, the limit is also two-faced and asymmetric as the pressure and topologies with and from the inside are different to that from the outside- similar (but less fluid) to the sieges discussed about the *limes*; border. Technological advances in warfare<sup>128</sup> and the need for protecting the citizens favoured expansion of the wall itself, contrasting with the initial and rather controlled strip. Then, a considerable area in the inner side of the wall had to be left unused and another larger area at the outside used just for allotments as happened in the city of Barcelona.<sup>129</sup>

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<sup>125</sup> Joseph Rykwert, *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and The Ancient World* (London: Faber Finds Ltd, 2013 first ebook edition), location 803 of 7482 and Spiro Kostof, *The City Assembled. The Elements of Urban Form Through History* (High Holborn, London: Thames & Hudson Ltd, 1992, reprinted 2004), pp.11-12.

<sup>126</sup> Rykwert, location 788 of 7482.

<sup>127</sup> Simon Unwin, *Doorway* (Oxon: Routledge, 2007), pp.112-15, he refers to these qualities while defining inside –outside and he also refers to the legend of the foundation of Rome.

<sup>128</sup> The introduction of gunpowder and cannons introduced new tactics in warfare, mentioned by Sennett, pp.180-181 and Spiro Kostof, *The City Assembled. The Elements of Urban Form Through History* (High Holborn, London: Thames & Hudson Ltd, 1992) pp15-37.

<sup>129</sup> The protected area on the outside side along the city walls of Barcelona correlates with what is now the *Eixample* and the distance between Barcelona and the small towns once on the periphery but nowadays districts of the city itself.

In a similar way to Trías, the sociologist Richard Sennett (1990:47) points out the dissimilarity between the formless and wild barbarian camps, contrasted with the formal *castra*<sup>130</sup> of the Roman Empire. Both refer to the work by Joseph Rykwert, who presents parallelisms between the morphology and inauguration of the *castrum* and the town despite the former being usually temporary and the latter permanent. The founding of a town was associated to rites where the figurative and mystic would transcend through symbols and translate into the urban form. Sennet<sup>131</sup> and Rykwert<sup>132</sup> each present a different variation<sup>133</sup> of the hierograph of the town-*nywt*- symbol, made of a cross circumscribed by a circle. Sennet alludes to the circle symbolising the town wall, providing enclosure for life to unfold and the cross representing a structure dividing the enclosure in four parts as well as bridging them together, making a direct reference to the universal order that will be transferred to the town and explained through the concept of the *Templum*. Rykwert devotes a section of his book to the concept of the *Templus* denoting place and is central to the formation of Roman towns. Based on Varro's understanding, *Templum* refers to three things: 1. Nature, which is in the sky, 2. Divination which is on the ground and 3. Resemblance, which is underground relating directly with the formation of the town.<sup>134</sup> The natural presiding phenomena taking place in the sky dictates our being; provides rhythm to our lives with the day and night, with the sun, rain, snow and so on. Humans had to think by means of protection and exposure. Humans thought that all these phenomena were either the Gods, or how they manifested to us and some of these were formalised defining the structure of the town with direct projections such as the *decumenus* and *cardus*,<sup>135</sup> as a representation of the divine on the ground. And, as part of the rite of the founding of a town, the Augur observes and assesses signs through which the Gods are manifesting on earth. These signs will determine the Augur's diagram - *lituus* - and the plough will furrow to resembling- inscribing- them underground and relating to the universe and the divine. The complex rites of the inauguration engrained these three meanings of the *Templum*. Varro believed that the word *Templum* derived from *tueri* meaning look, gaze, stare or observe but later thinkers attribute it to the Greek word *tememos* and this from *temno* defined as sacred enclosure, implying a boundary. Varro says that

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<sup>130</sup> Refers to the military camps.

<sup>131</sup> Richard Sennett, *The Conscience of the Eye. The Design and Social Life of Cities* (New York & London: W. W. Norton & Company, 1990), p.46.

<sup>132</sup> Rykwert, location 1558 of 7482.

<sup>133</sup> Rykwert presents the *Templum* of the Sky from the most ancient surviving manuscript; *Corpus Agrimensorum Veterum, Wolfenbüttel, Herzog-August Bibl., Guelferb 2403. Aug.f.36, p.41 recto* with the circle as the leading element.

<sup>134</sup> Ibid., location 1456 of 7482.

<sup>135</sup> *Decumenus* is the direct projection on the ground of the Sun path. *Cardus* in contrast is the projection of the sky and defined by the noonday sun. Therefore, they are based on the universal order representing the universe.

the normal Templum “ought to have a continuous fence and not more than one entrance” and the town has more entrances, and these have been consecrated but are not sacred.<sup>136</sup> Therefore the city wall had a crucial role in the formation of towns in its praxis and conceptually, producing symbols bridging the two.

Trías reflects on the gate as part of the city wall, and as an instrument that removes the limit. The city-wall physically delineated the city, separating the unified in Simmel’s words, and its initiation embraced the rituals relating to the liminality that Turner presented. The city wall, in a similar way to the country border considered by Trías, encapsulated the relevance of limits in our everyday life and how these are complex, inhabitable, subjected to tensions from both sides and from within, resulting in a changeable and asymmetrical strip.

## The Limit in Sociology and Geo-Politics

The third part firstly presents the limit as edge and this is the overarching term for boundaries and borders proposed by Sennett, who also suggested a classification of exchanges influencing the borders and boundaries. This is followed by a discussion on borders and boundaries and their intricacies and differences drawing from geopolitics. At some points, the discussion is closely linked to the state borders, but at other points it moves to the more mundane borders and boundaries.

### The Limit As Edge

The sociologist Sennett presents an alternative view of the city wall in line with today’s connotation of the wall as a mere limiting element, relating to the Greek word *peras*, or boundary. Sennett classifies the boundary as a type of edge. He considers that “internal edges” are continuously shifting to adapt to the change of internal and external forces. He classifies the edges into two groups: boundaries and borders. Boundaries refer to more or less inactive edges, where exchanges and elements decrease. On the contrary, borders are edges where activity, exchanges and elements increase near to the edge,<sup>137</sup> taking us to the limit in socio-politics. These types of edges are manifested in “differentiated” exchange that takes place between species in the natural environment. This type of exchange is among five<sup>138</sup> identified, based on

<sup>136</sup> Rykwert, location 1472 of 7482.

<sup>137</sup> Richard Sennett, *Together. The Rituals, Pleasures and Politics of Cooperation* (London: Penguin Books Ltd, 2013), p.79.

<sup>138</sup> Proposed in the chapter dedicated to the ‘Fragile Balance’ in *Ibid.*, pp.65-95.



the fine balance –combination and negotiation- between competitiveness and cooperativeness observed by ethologists in nature, and this is intersected with the rituals in society; especially in religion. In nature and culture, there exists a fine balance and this is shaped by the way beings relate and on how edges<sup>139</sup> are established through natural and cultural processes, where separation and connections are contested through interactions between different groups or colonies. Separation and connection are prime in the concept of the limit and liminal, defining the interactions affecting the environment or vice versa as the environment can affect interactions and exchanges.



Fig. 1.3.1  
Diagram of Type of Exchanges.<sup>140</sup>

The two extremes of the type of exchanges are defined, on one end, by the “altruistic” exchange determined by self-sacrifice of the individuals, colonies or communities and, on the other, by the “winner takes all” exchange where one party removes the other. One side of the extreme is followed by the “win-win” exchange where both sides benefit, and pattern behaviour is key and the other by the “zero-sum” exchange where one individual, community or colony succeed at the expense of the other. And in the middle, there is the “differentiating exchange” presented above and the only one which defines territories and edges. Sennett affirms that “exchanges is to minimize aggressive competition for territory. Edges are fraught zones in natural geographies because they shift constantly”.<sup>141</sup>

For the “differentiating exchange”, Sennett presents the example of the shoreline; the meeting point between the sea and land that relates to one of the landscape studies of this research. Although, he translates these at one end to the highways crossing the city generating boundaries, and to the other end the mixed-use street generating borders. Therefore, he concentrates on exchanges taking place at those meeting points of colonies or situations. He reflects on the exchange between two strangers who meet at the bar, or people meeting

<sup>139</sup> We need to remember that here, “edges” refers to border and boundaries in Sennett’s terms.

<sup>140</sup> The diagram is based on Sennett’s classification based on ethologists, naturalists, geneticists and entomologists, *Ibid.*, pp.65-95.

<sup>141</sup> *Ibid.*, p.79.

casually at a party, where there is an exchange and a priori this seems a win-win situation for both parties. But on reflection, we realise that both parties get a better understanding of their own desires, wants and likes because they understand their own differences compared with what they have learnt about the other.<sup>142</sup>

In his paper 'Open City', he also reflects upon the difference between boundary and border by deploying the analogy of the complex cell. "The cell wall retains as much as possible internally; it is analogous to a boundary. The cell membrane is more open, more like a border – but membranes reveal something important about what 'open' means".<sup>143</sup> This type of edge is a boundary and a border simultaneously along its length, reminding us of the limit of Trías and the liminal which are asymmetrical, though this edge cannot be inhabited. It contains, like the city wall, and it allows, like the door; but it is not a door. It conserves and resists in one direction and allows in the other. Although, the allowance is selective as with the door of the city wall. The membrane is porous as well as resistant; preventing valuable elements from leaking away through the membrane. This talks about conservation and resistance and these are part of the equation of producing openness. Boundary/wall and border/membrane explain the difference between closed and open built form. Sennett points out that corporation and competition are a better balance in the "differentiating" exchange and "establishing territories through marking out borders and boundaries is pervasive in natural communities but becomes more specialized and subtle in human culture".<sup>144</sup> He quickly advances, uncovering that the symbol, symbol-making and symbolic exchange are very significant in the middle of the spectrum, correlating with Trías and Kant. This also correlates with the liminal, saying that "rituals are one way of structuring symbolic exchanges".<sup>145</sup>

### **Distinction Between Borders and Boundaries**

Since the 1980s, there has been a growing interest around borders and boundaries producing an astronomical amount of literature, conferences and research groups focussed on this field.<sup>146</sup> This research largely questions the nature, conceptualization, manifestation, processes,

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<sup>142</sup> Part of these reflections are based on the geneticist Stephen Gould's work, *Ibid.*, p.79.

<sup>143</sup> Sennett, *Open City*.

<sup>144</sup> Sennett, *Together*, p.86.

<sup>145</sup> *Ibid.*, p.86

<sup>146</sup> See Vladimir Kolosso, 'Border Studies: Changing Perspectives and Theoretical Approaches' *Geopolitics*, 10:4 (2005), pp.606-632, where he presents an extensive table with the nominal studies in geography around borders and boundaries and especially state borders. For more recent work see the Critical Border Studies (CBS) who in 2009 published their agenda in *Lines in the Sand? Non-Territorial Bordering Practices in Global Politics* authored by Noel Parker and Nick Vaughan-Williams et al. echoing the voices of

experiences and changes of geopolitical borders which was previously conducted mainly by geographers, anthropologists and sociologists but recently authors from other disciplines have joined the fray. There are two broad approaches to the study on borders: on one hand there is the pragmatic group, in which knowledge derives from the practice of borders, and on the other hand there is the critical group, in which knowledge comes from theorising and questioning the conditions related to the border, allowing for categories. Furthermore, David Newman & Anssi Paasi identified four broad areas of study of state boundaries: “1) the suggested “disappearance” of boundaries; 2) the role of boundaries in the construction of socio-spatial identities; 3) boundary narratives and discourse and 4) the different spatial scales of boundaries construction”.<sup>147</sup> This section aims to review relevant literature that contrasts and/or complements the approaches presented above in relation to the conceptualization of the limit and its theoretical framework, but always considering the aim of this specific research of the limit in the built environment.

Researchers, as such as Newman and Paasi, Arpad Szakolczai,<sup>148</sup> Critical Border Studies<sup>149</sup> and the Euborderscapes project,<sup>150</sup> aim to clarify the conceptualization of borders and boundaries and to identify a common theoretical framework which has proved very challenging or even impossible. Some affirm that “borders are everywhere”,<sup>151</sup> experienced every day,<sup>152</sup> socially constructed,<sup>153</sup>

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the research group which were funded by the British Academy. In 2012, this group edited issue 14 of the journal *Geopolitics* dedicated to the Border and these papers were also published in 2014 in the book titled *Critical Border Studies. Broadening and Deepening the “Lines in the Sand” Agenda* edited by Parker and Vaughan-Williams (Abington Oxon and New York: Routledge). Two companion books on the subject were published in consequent years: first published was the book edited by Doris Wastl-Walter, *The Ashgate Research Companion to Border Studies* (Surrey, England & Burlington, USA: Ashgate Publishing, Ltd, 2011) followed by the book edited by Thomas M. Wilson, & Donnan Hastings, *A Companion to Border Studies* (Chichester, West Sussex: Blackwell Publishing Ltd, 2012). During the same year, in 2012, the research group “Euborderscapes” published its first report titled *Euborderscapes. State of Debate Report I* edited by Vladimir Kolossov.

<sup>147</sup> David Newman and Anssi Paasi, ‘Fences and Neighbours in the Postmodern World: Boundary Narratives in Political Geography’ *Progress in Human Geography* 22,2 (1998), pp.186-207 (p.191).

<sup>148</sup> Arpad Szakolczai, ‘Liminality and Experience: Structuring Transitory Situations and Transformative Events’, *International Political Anthropology*, 2009, 2 (1), pp.141-172 and ‘Boundaries and Borders’ to name a few papers.

<sup>149</sup> The Critical Border Studies (CBS) is a group of geographers, philosophers and anthropologists. They focus on state borders but some of the papers ponder the epistemology and ontology of the border applicable to the limit.

<sup>150</sup> “Euborderscapes” is an international research project funded by the European Commission under the 7<sup>th</sup> Framework Programme of Research and Technological Development on the study of borders that will finish in May 2016 and it is constituted of 22 partner institutions.

<sup>151</sup> Mark Salter ‘Theory of the / : The Suture and Critical Border, *Geopolitics* 17:4 (2012) pp734-755 (p750) who is part of CBS and the Euborderscapes; Passi, ‘A Border Theory: An Unattainable Dream or a Realistic Aim for Border Scholars’ in *The Ashgate Research Companion to Border Studies*, pp11-32 (pp22-23)

<sup>152</sup> Euborderscapes, p.8.

<sup>153</sup> Newman and Passi, p.188, say that geographers in general claim this implying that “the question

carrying “symbolic components of our environment that highly impact our lives”<sup>154</sup> and these are flexible—once considered as rigid and fixed— and come in different shapes, types, roles, forms and scales.<sup>155</sup> The border, here presented, has close parallelisms with the limit of Trías and previous authors. Trías suggests that we are the limit, and while this could be questioned, we can interpret and understand our surroundings through the reading of its limits. These fluctuate, affecting everyone differently and he insists on the value of the symbol as it is constructed by the individuals and society. Salter and Kolossov refers to the “network of borders” in line with the notion that “borders are everywhere”, Trías’ approach of the different levels of limits and Heidegger’s proposition of the bridge and its gathering; does the gathering involve different limits/boundaries? Are these independent or part of something else?

The report “Euborderscapes” begins by referring to borders in general and of all scales, saying that “borders are an intrinsic element of human life and are an element of the relations between individual and society. Different parts of humanity have been always separated and at the same time connected by a network of borders at all territorial levels”.<sup>156</sup> Even though some agree with the statement that “borders are everywhere”, others add a subtlety saying that “the border is not everywhere for everyone”,<sup>157</sup> explaining that there are many different types of boundaries and different populations experience them differently. Although, as pointed out above, boundaries establish relations between individuals and society supporting Massey’s belief that boundaries are artificial and a social construct based on social practices.<sup>158</sup> Furthermore, Massey and Jess (her co-author) support the view that boundaries are significant to define some kinds of sense of places<sup>159</sup>. They acknowledge the double role of the boundary as a separator and connector; a way of differentiating us from them or others producing the insider and outsider and sense of inclusion and exclusion correlating with an inside and outside. Massey argues in ‘the conceptualization of place’ that the existence of boundaries is contested for three reasons: firstly, activity spaces and social spaces<sup>160</sup> are interconnected and this interconnectedness

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of power” is important influencing the definition and re-definition of the relations between society and physical space.

<sup>154</sup> Arpad Szokolczai, ‘Boundaries and Borders’ p13.

<sup>155</sup> Chris Rumford ‘Towards a Multiperspectival Study of Borders’, *Geopolitics*, 17:4 (2012), pp.887-902 (p.888).

<sup>156</sup> Kolossov, p.4.

<sup>157</sup> Salter, p.750.

<sup>158</sup> Doreen Massey and Pat Jess, *A Place in the World* (New York: Oxford University Press Inc, 1995).

<sup>159</sup> *Ibid.*, pp.67&162.

<sup>160</sup> Massey refers to “activity space of something is the spatial network of links and activities, of spatial connections and of locations, within which a particular agent operates” (*Ibid.*, p54). My activity space is weekly daily trips between home and work via my child’s school or my daughter’s nursery (implying different routes), two weeks a year in Mallorca, a week in Barcelona, a monthly trip to Usk, a weekend

cannot be dismissed, thus overcoming the boundary. Secondly, places are open and porous and thirdly, there are reservations on the concept of identity related with differentiation, but just based on closeness, pure places and exclusion.<sup>161</sup> But she conveys that “pure places”<sup>162</sup> do not exist and places benefit from and are shaped by the interrelations where boundaries are crossed by flows. Therefore, it is not pure and complex boundaries. She understands boundaries as lines that “do not embody any eternal truth of places rather they are lines drawn by society to serve particular purposes [...] in a sense, [These] are one means of organizing social space” and can be part of the process of place making and identity.<sup>163</sup> Finally, boundaries are an act of power and this may be drawn by the weak seeking protection, by the strong to protect their position, or they can be imposed.<sup>164</sup>

Some authors,<sup>165</sup> influenced by post-modernism and post-structuralism thinking and scholars like Foucault, Derrida or Bourdieu, argue that a boundary is more than a line, alluding to Massey’s idea of the boundary defined through social practices. “A line”<sup>166</sup> may divide but also cross flows, it may also establish or allow for interconnections and the study of the boundary as a line may prevent reaching the system within which the line acquires and projects meaning.<sup>167</sup> The boundary may be the line where public and private meet and in terms of ownership the line is clear, but the public can see and even access part of the private side 24 hours a day, establishing other limits; lines. Moreover, the governance and management may not coincide, creating other lines.<sup>168</sup> Thus, the boundary becomes a strip of land between two lines (or more) and these are lines of power relating to Trías reflections. In geopolitics, the dynamics of/and along the frontier/

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weekly trip to the supermarket, park,... and this exercise can be applied to companies and its employees. And social relations form social spaces (Ibid., p.57).

<sup>161</sup> Ibid., p.69.

<sup>162</sup> Nowadays a neighbourhood may have boundaries supporting its identity and sense of place. This may be tangible but this is crossed by goods coming from outside, people crosses them to go to work, neighbours regularly visit the park or shops or library.

<sup>163</sup> Massey and Jess p.68.

<sup>164</sup> Ibid., p.69.

<sup>165</sup> David Newman, ‘Boundaries, Borders and Barriers: Changing Geographic Perspectives on Territorial Lines’; Mark Salter, ‘Theory of the / : The Suture and Critical Border’ and Arpad Szokolczai, ‘Boundaries and Borders’. This latter author poses the question: “Can we experience a border or a boundary as traced on a map?” (Ibid., p13) which compares with the research question of this work: Can the limit or boundary been drawn as experienced? This author mainly reflects on state border, acknowledging other types of borders and boundaries.

<sup>166</sup> “a line” perhaps defining ownership, building line, parish, district, region, country and others.

<sup>167</sup> Salter, p.737.

<sup>168</sup> Ali Madanipour, in his book *Public and Private Spaces of the City* (London and New York: Routledge, 2003), points out that “public and private spaces are a continuum, where...the two realms meet through shades of privacy and publicity rather than clearly cut separation” (p.239). He concludes that there has to be “a multiplicity of boundaries” in the meeting place between private and public, allowing “ambiguity and clarity” to coexist and deal with tensions, negotiations and being contested (p.240-241).

border are rendered by the line drawn on the map fluctuating more than we perceive, and a blurred strip arises. Salter believes in the ability of a boundary to define rights and limitations relating to territoriality. He dwells on the metaphor of the “suture”, suggesting that the seam knits together two things or parts by stitching them together and leaving a scar. His metaphor implies a cut, consequent trauma and a permanent line of exception. It emphasises that a border is usually the result of conflict and the wound of that conflict heals through a period of high tensions where time is crucial. Once the situation is settled, a scar appears, which will carry on changing, becoming less visible and settling within the landscape. The metaphor of the suture enables us to observe “multiple insides from multiple outsides and the resultant site of rupture and repair –allows us to contingently define the dual functions of the border as tentative separation and as incomplete unification. The suture is thus a thinking tool”.<sup>169</sup> Like Rumford, he considers that the border draws together different scales; there is an interrelation between the different scales that somehow defines the border and vice versa.<sup>170</sup> Salter’s approach directly relates to Trías’ thinking where the object of investigation is a strip which changes through time as agencies act on it and between them. The strip opens up the notion of the multiple boundary in different locations from the same and different locations, relating to agencies, bodies and people and acting in different scales (multi-scalar).

The statement “places are not pure”<sup>171</sup> mentioned above is somehow related to the multiplicity of the boundary that is transgressed by different flows, establishing an interrelationship between places and layers of relations between different scales. A well-debated example is the relationship of the global against or with the local in a neighbourhood. Massey explains that the female reads places with its interrelationships, transgressing the boundaries, whereas the male tends to provide a meaning based on the concept of “home”, differing from the female’s conception.<sup>172</sup> Passi and Zimmerbauer<sup>173</sup> present the relational thinking on borders in spatial planning, using terms such as hard and soft space, “fuzzy borderscapes” and “penumbral borders” relating to Sennett and his classification of edges and types of exchanges. Penumbral

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<sup>169</sup> Salter, p.747.

<sup>170</sup> This correlates with the network presented by the Euborderspace.

<sup>171</sup> Purification of space or purified identities have been researched by Sennett and David Sibley amongst others. Some explore the tension between global and local relations and others, like Sibley, talk about purification in relation to rejection and differentiation and the use of boundaries as a means of securing socio-spatial and ethnic homogeneity. See Richard Sennett, *The Uses of Disorder. Personal Identity and City Life* 1st edn (New Haven & London: Yale University Press, 2008), in 1970; David Sibley, ‘Survey 13: Purification of Space’, *Environment and Planning D: Society and Space*, 6 (1988), pp.409-421 and *Geographies of Exclusion*. (London & New York: Routledge, 1995).

<sup>172</sup> Massey, p.64-65.

<sup>173</sup> Anssi Passi and Kaj Zimmerbauer, ‘Penumbral Borders and Planning Paradoxes: Relational Thinking and the Question of Borders in Spatial Planning’, *Environment and Planning A*, 48:1 (2015) pp.75-93.

borders are defined as “occasionally ‘clouded’, yet relatively delineated borders that, reflecting such social practices, act like a membrane in permitting and blocking flows, events and ideas”.<sup>174</sup> Therefore boundaries are important but also what they cross and how much the boundary allows to go through and takes from these things, which was also considered by Sennett and which he presented with the metaphor of the cell membrane.

The following passage by Etienne Balibar defining border features the interchangeability among the terms border and boundary and this is not resolved even nowadays. Szakolczai points out that “post-modernity requires us to re-conceptualize boundaries and borders”<sup>175</sup> in their meaning but also their etymology. Balibar affirms that:

*“[...]to define or identify in general is nothing other than to trace a border, to assign boundaries or borders...the border is the preconception of any definition [...]. The establishment of borders is related to determining identities and these “are, to varying degrees, active and passive, voluntary and imposed, individual and collective”.*<sup>176</sup>

For example, Massey and Jess refer to boundaries, while Passi and Zimmerbauer refer to borders. Newman and Paasi state that boundary and border used to refer to the line between countries and frontier to the area affected by the legislation of the line; the border or boundary. Moreover, Arpad Szakolczai claims that:

*“boundaries may appear to be more mundane than borders, as more people have probably had the chance to experience them personally [...]. It is, however, much more difficult to touch a border, even when it is a material barrier or a wall [...]. Probably more than boundaries, borders are a kind of space where the relationship with otherness can be developed such a way as to allow for identity-building and place-making [...] borders emphasizes the complex relations of the spatial divides with distance”.*<sup>177</sup>

Hence, there is a consensus among geopolitical scholars to name the border as a line which involves strong political connotations, can regulate with laws and rules, and in many cases

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<sup>174</sup> Ibid., p.78.

<sup>175</sup> Szakolczai, p.13-14.

<sup>176</sup> Étienne Balibar, *Politics and the Other Scene* (London, New York: Verso, 2002), p.76.

<sup>177</sup> Szakolczai, p14.

imparts benefits, rights and/or duties to some. There is also a consensus to name boundary as the strip of land or buffer area along the border that is affected both by the border and by transboundary affairs. The term borderscape and borderlands are used in a similar way to boundary. Frontier refers to the area along state borders like the boundary. Different researchers deploy the gerund bordering from the verb “to border” instead of the noun border, emphasizing its ephemeral quality to contrast with the preconception that the border is being fixed with the capacity to re-bordering or b-ordering.<sup>178</sup>

Many of the reflections in this section are based on the investigation of state borders, but most authors acknowledge that boundaries take place at different scales, though these may be tangible or intangible and sometimes invisible and these can be due to social, economic, religious or politic aspects. Despite the diversity of boundaries, attempts to classify and to define a general epistemology and ontology are still missing. There are useful attempts based on methodologies shaped by the background of the researchers, but these do not fulfil the role of an epistemology or ontology of the boundary.

## Summary

The terms *limit* and *mark* translate easily to French and Spanish and, even though the word limit follows a different root in German, they also translate and correlate well to the German language. These words contrast with the terms *boundary*, *border* and *edge* which have no direct translation. The words boundary and border in French, Spanish and Catalan translate into frontier and limit and in English frontier has less use. The term threshold in Spanish is “umbral” that derives from the Latin *lumar* from *limes*, thus, directly linked with the limit and the liminal. Writers in sociology and geo-politics acknowledge that it is difficult to identify a definition for boundary and border.

Philosophers examined here explore the limit in relation to how it informs or determines fundamental knowledge, existence and reality. To do this, they move between the world of lived- experience, and the world of abstraction and conceptualization. In some cases, when they move within the world of lived-experience, they examine notions relevant to this research.

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<sup>178</sup> Henk van Houtum, ‘The Mask of the Border’, in *The Ashgate Research Companion to Border Studies*, ed. by Doris Wastl-Walter (Surrey, England & Burlington, USA: Ashgate Publishing, Ltd, 2011), pp.49-61.



Early philosophers reached the limit from its antonym *apeiron* (boundlessness), “that which is not experienced”,<sup>179</sup> referring to the mind and reason that contraposes our being in the world that it is limited by our body and also by the world. We only can experience what it is bounded. Nonetheless, in all things, Plato saw the *apeiron* and *peras* and this in relation to our experience of the world and the recognitions of things based on “the theory of ideas”. We recognise things in relation to ideas which are eternal, immutable and finite, while our experience of the things themselves are tangible, mutable and infinite as two things are never exactly the same. And the finite/limited and unlimited are related with the unity.

Kant presents the duality of being, as the body is bounded and finite contrasting with unbounded reason, but reason works within certain parameters making the being both; immanence and transcendental. Kant identifies three limits: the limit of the body we know through our experiences taking place in space and time; the being which cannot know of the object itself, but only through experiencing it; and the reason that operates within a boundary.

Heidegger’s argument about human’s finitude departs from Kant’s, overcoming the split between “object” and “subject” based on a mode of existence as “Being-in-the-World”. This is limiting in three ways; Being-in, Being-in-the-World, and in-the-World. Furthermore, human beings’ finitude is determined in the manner we experience things; available/ready-at-hand, or occurrent/present-at hand to us, and these experiences are temporally bounded.

Trías’ reflections draw from Kant’s arguments, while sympathising with Heidegger’s beliefs. He goes further with the idea of human beings’ finitude, postulating the “Philosophy of the Limit”, understanding our existence through the limit. As part of his ontology, he proposes three sieges,<sup>180</sup> appearing, bordering and hermetic, complemented with seven categories. The first siege belongs to the world, the second to being (as a physical being who experiences) and the third to reason. The siege of bordering acts as a hinge, able to mediate the other two. Thus, being is a limit in the sense that humans dwell from, within the limit. Our character is immanent and transcendental as we exist within and reach what is not seen through reason.

Trías explains the notion of the limit through the description of the condition of the border. He deploys the word frontier, which is particularly significant to this study. This is described as an inhabitable double spatio-temporal limit, defining a loose strip able to mediate and connect,

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<sup>179</sup> Dirk L. Couprie, ‘Anaximander’ in *Internet Encyclopedia of Philosophy* ed. by James Fieser and Bradley Dowden <<http://www.iep.utm.edu/>> [Accessed 9 May 2018].

<sup>180</sup> The word *cerco* does not have a direct translation into English and so I adopted “siege” and “besiege”.

understood as a disjunction and joint (the *limes* and *limen* are reflected). This is asymmetrical, difficult to pin down, constantly changing, the result of tensions and pressure from the outside to the inside (limit), but also from the inside to the outside(s) (contested and reflective) and always positive.

This definition also applies to the notion of the threshold<sup>181</sup> as a hinge between stages allowing for continuity and an in-between dwelling in the “there” (siege of appearing), the “over-there” (hermetic siege) from the “here” (bordering siege). Thus, the limit of Trías correlates to the limit in anthropology- the threshold and the liminal- in the rituals promoted by Turner. The anthropologist depicts how rituals exist in all cultures, including the idea of the liminal and the threshold, but also examines how these are culturally influenced and even defined. Furthermore, Simmel reflects on the phenomena of the door and also the bridge, as does Heidegger, that have the idea of the threshold implicit and thus, the limit.

The debate on borders in socio-geopolitics is substantial around geographic and legislative fluidity. This discipline has struggled to identify a generic yet robust definition of border and boundaries to guide the debate and work on borders. It emphasises the double nature of the border as rigid, providing a sort of framework as well as being flexible, allowing being in continuous change. It is also defined by its ability to influence and affect (as well as being influenced and affected by) different scales and aspects (political, religious, spatial, social relations, individual understanding). Borders and boundaries are constructed, and the latter are more mundane and tangible. Some recognise that borders are everywhere, and they are experienced in a complex network and continuously change. Thus, it is significant but also unpredictable due to its complexity in terms of factors and agencies involved. Sennett has evolved his discourse around the term edges, in plural, and these include boundaries and borders defined by the type and degree of exchanges between the inside and outside. This study reveals the multiplicity of limits and how Trías’ definition, mediated by different authors and disciplines, is a good starting point to explore the phenomena of the limit as experienced and as manifested, and its effects on the urban environment.

The descriptions of the limits of the case studies, especially the façade, kerb and inner wall of the open space of the *Jardins*, linkage-entrances in *L’Illa Diagonal* and the *Torrent* of the inlet, have already displayed the double nature of the limit as *limes* and *limen*. At first, some

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<sup>181</sup> In the way the threshold is presented, it coincides with the term portal which correlates with the different languages considered in this study, but which is not widely adopted probably due to its mundane nature.

of the limits present themselves as a *limes* (like the line of the kerb delineating the change of level) with negative connotations, but very soon these also present themselves as *limen* (some authors deploy the metaphor of the membrane). Hence the limit presents a double duality that generates space. Duality as the limit is subjected to tensions and pressures but this also imposes tension and pressure making space for this to happen. Double, because the limit due to these actions becomes a strip, with an inherent dual limit at each side and the strip implies space instead of just a line. Thus, this strip reveals itself as complex constantly fluctuating due to the pressures and tensions.<sup>182</sup> This was experienced at the seashore, the edges of the *torrent* and the limits of the urban cases that are influenced by the urban rhythms but also the sun. They change as most of them reveal themselves differently at different scales taking distinctive roles and assisting with the transition of scales. This is experienced in *L'illa Diagonal* where many limits are just one in terms of their physicality but take different roles and are defined differently at different scales, possibly exhibiting a topological nature. The “here” and “there” deployed in many of the descriptions identify subtle limits. These are defined and define, and they are object of the tensions and pressures mentioned above producing asymmetry. These continuously change as they take different positions in our views formed by our eyes and determined by our position. These may create a mesh of interrelated limits, in a similar manner to the network of limits presented by the geo-politics.

The following interim conclusion chapter seeks to present a workable definition of the limit in urban design and architecture. This unravels from the learnings of this chapter, shaped by the personal lived-experience of the limits of the selected three case studies, and by the written-experience of the limits (descriptions) sustained by knowledge of the urban design thinkers.

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<sup>182</sup> In the descriptions of the case studies these were referred to as internal and external agents.

## 1.4 Interim Conclusion: Definition of the Limit in Urban Design and Architecture

This Part 1 has aimed to work towards a working definition of the limit in architecture and urban design, emerging from studies of boundaries in urban design, the experiences of limits in the world, and in relation to philosophical, anthropological, sociological and geo-political accounts of limits.

The opening review of limits in the work of urban design thinkers reveals their significance and richness as well as the various means by which the limit is disclosed and where this is positioned in the environment. Although many authors touch upon the limit, such as Jan Gehl, William H. Whyte, Jane Jacobs, Christopher Alexander et al, Kevin Lynch, Clare Cooper Marcus and Carolyn Francis; most of the approaches are partial<sup>1</sup> in the sense that the studies are inconclusive and lack a robust approach. The works by Miloš Bobić, Larry Ford, Edward T. White and Quentin Stevens are exceptions, presenting substantial studies and unveiling specificities of limits. Giambattista Nolli, Gordon Cullen, White and Bobić and Stevens present methods that can be adapted to explore the limit.

The descriptions of limits in the worlds of the case studies account for the experience of limits in the world and the way these present to us, determining our engagement and understanding of the environment. The “here” and “there” of Cullen, correlating with the grounds that constitute a view<sup>2</sup> and their implicit changeability, relate to the unfolding of experiences as we move through. The overlapping of land uses with inherent rhythms and associated activities raised by Jacobs, Whyte, Stevens are aspects also experienced in the case studies, affecting the limits. The descriptions also present limits that evoke some of Stevens’ points emerging from his classification, able to determine our sense of safety, belonging, togetherness and distinctiveness as mentioned by Gehl, Stevens, Cooper Marcus and Francis. The idea of the edge from Lynch, reflections on urbanity and the interface delineated by relationships by Bobić, confrontations

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<sup>1</sup> As the limit is not central to their inquiry but emerges as a relevant aspect to consider.

<sup>2</sup> Juhani Pallasmaa, Alberto Gómez-Pérez and Steven Holl introduce the relevance composition of grounds determined by the beholder.

and negotiations associated to change by Jacobs, Alexander et.al. and Bobić, the notion of the portal associated to the idea of mediating, transitioning by White and others, the notion of the membrane mentioned by many are some of the aspects experienced and reflected upon the descriptions aside from more detailed observations of the limits.

Inquiry after the limit in philosophy offers a specific lens, drawing on the urban design thinkers and experiences of limits in the world, to frame the research. Very early philosophy started with the understanding that what is boundless (*aperion*) cannot be experienced, and therefore bounding (*peras*) becomes intrinsic to experiencing. Then, we encountered the notion that *aperion* (understood as undetermined) and *peras* are in all things, and these are fundamental parts of our way of experiencing and perceiving. Furthermore, the limit is not just where something ends (*limes*) but also where something begins (*limen*). Thus, the limit is a complex notion defined and established within a balancing act between the *aperion/peras* and *limes/limen*. This link between finitude/infinitude had already appeared in the writings of the first philosopher Anaximander and then Plato, and Aristotle and Immanuel Kant reached a complex understanding of finitude which Martin Heidegger and Eugenio Trías take further. Heidegger established the finitude of the human based on his proposition of being-in-the-world, his conception of our spatio-temporal existence, and the forms in which things present to us. Trías does not contradict Heidegger, but states that we are the limit, and we exist from the limit. He defines three sieges from which our existence takes place: the appearing siege (the world where we exist), the hermetic siege (reason) and the bordering siege (the hinge linking the former siege and the latter one). Trías describes the experience of the frontier-limit and uses it as a metaphor where the “gathering” of the limit, intrinsic to the “thing” in Heidegger with its disclosedness and discoveriness, is presented, and with this he outlines the complex notion of the limit. Thus, the philosophers signify the limit but also the means by which we apprehend it and we can study it. Lastly enquiries in anthropology, sociology and geo-politics connect back the abstract attributes of the limit as proposed by Trías to environmental conditions such as the threshold, door, bridge, city wall and borders- boundaries. These are experienced from different positionings where the tensions between *limes/limen* are core. Hence, these reflections link, clarify and complement the descriptions of the limits in the world and the urban thinkers’ aspects and considerations.

The brief etymological study around the limit and related words and the correlation of these with other languages reveals the richness and relevance of the notion of the limit in everyday life and how this has become translated into language. The selected account of the limit in

philosophy, anthropology, sociology and geo-politics here was proceeded and framed by my lived-experience of limits, the descriptions and the review of the limit in urban design. In the intersection of these tripartite approaches, the definition of the limit and its attributes have emerged.

### **Definition**

The foregoing investigations propose the following definitions: The limit is a recognisable, inhabitable, spatio-temporal, asymmetrical, ambiguous, fluctuating and contested strip. It is always a positive<sup>3</sup> “strip”, with a double limit- able to mediate and integrate while also separating and disconnecting. It is simultaneously a join and a disjunction. The limit is an entity itself, yet it is “topological”, in the sense that it is a part of, belongs to, and depends on the whole. Due to being reflective and contested, it contributes to the definition of the whole, just as the whole in relation to other parts inversely define the limit. The limit changes, taking a different role, when we change position or scale, and also as affected by external agents.

The limit, thus defined, correlates with the “gathering” of Heidegger. It emerges from the reading of Trías’ “philosophy of the limit”, consolidated and extended in relation to experiences of limits, which opened up interpretation.

### **Attributes and Qualities**

The limit, here, is thus understood as a notion with multiple variations and adaptations based on the distinct display of its attributes and qualities:

- 1. Strip.** The limit is inhabitable. It has a thickness and spatial and temporal qualities intrinsic to inhabitation. The single line of the limit has become a double line; a double limit. The delimitation of the limit creates an inside and an outside in relation to the limit. This inside and outside conveys the “here” and “there” in a similar manner used by Cullen and also embodied in the delineation of the foreground, middle ground and background. Lynch defines the edge as an area with longitudinal and transversal dimensions. Ford refers to the boundary zone, and Bobić’s abstract mapping in section of the interfaces is a strip. The descriptions present inhabitable limits constituted by variable widths and elements. For example, the inlet reveals the strip where the sand and rock, the water and rock or

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<sup>3</sup> In the sense that this is inhabitable contributing to define the environment. It is not just where something ends but also where something begins.

the water and sand meet. The pavement described in *Jardins Lina Òdena* is a complex limit; an in-between with a thickness. The linkages and entrances in *L'illa Diagonal* display indeterminate and broad strips as limits.

**2. Join & Disjunction.** The limit simultaneously connects and separates, determining the degree and type of continuity between the inside and outsides. The limit is the result of the negotiation and temporary balance between the *limes* and *limen*. The typical case, simultaneously displaying join and disjunction, is the threshold presented by Stevens, the doorway by Aldo van Eyck and Simon Unwin, and the portal by White in urban design. This is also presented in the doorway and bridge by Georg Simmel, the bridge by Heidegger and the city-wall and its gates by Joseph Rykwert. The limit separates public from private ownership and management, the outside from the inside, the secular from the sacred. But it also connects these distinct worlds in a particular manner, and the limits prepare the inhabitant to changes of attitude, behaviour and predisposition. Ford and Bobić refer to spatial configurations to establish transitions between adjacent situations or elements, aiming for balance between segregating and integrating, without compromising the identity of the situations or elements at each side. White, meanwhile, envisages limits as a portal, directly denoting the “liminal” of the ritual passages in anthropology. At one level the superblock of *L'illa Diagonal* deploys strategies to mediate and integrate the avenue with the residential area. But, at another level it wants to separate them to maintain territory and identity. The kerb of *Jardins Lina Òdena* is experienced as an element that separates as well as connects, separating the pavement from the road but linking surfaces at different levels allowing them to be transgressed.

**3. Reflective & Contested.** The strip with a double limit is not isolated but is part of its surroundings. Thus, there is some sort of exchange between the different parts, affecting and able to modify the strip. Trías reflected upon the forces and influences from the centre and the Barbarians to the *limes* and *limitanei*. Nonetheless, the *limitanei* was a danger both to the Romans dwelling at the centre and the Barbarians. In this instance, it appears reflective and contested in both directions. Jacobs reflects upon the contested limit of the façade, with retail at one side and the pavement on the other. Or the perimeter of the park being contested by land uses placed at its limit. Bobić presents the interface as socially constructed, and reflective and contested, in relation to unpredictable agents, with multi-scalar interrelations that remain difficult to foresee. The descriptions present a limit that is defined, re-defined and able to re-define other entities. *L'illa* bears the tension from the two

worlds it links, resembling Trías' descriptions of the frontier. On the one hand, the avenue pushes inside, sizing the openings of the links and on the other hand the residential area penetrates the block, although *L'illa* itself penetrates and determines the adjacent elements. The stream of the inlet shows two different edges that are defined by, and define, the profile of the ground, the sand. The course of the water and its movement is determined by this topography, but the movement and pressure of the water also re-determines the topography of the sand.

- 4. Asymmetrical.** As the limit is double, connecting and separating, and reflective and contested, it can easily disclose asymmetries. The limit sits between two distinct conditions, contesting different forces to create the asymmetry. Moreover, external agents that affect the limit will exacerbate the asymmetry as these can be different. Each side of the limit can react differently as it is already subdued to different forces. Thus, as a result, the limit is likely to be asymmetrical and it may disclose a double asymmetry as this may happen to each side of the limit. This happens when the porosity, level of exchange or pressure and resistance between the outsides and the inside differ. In Trías' limit the *limitanei* may be welcome in the Barbarian territory but the Barbarians are not allowed to access the *limitanei*, producing different influxes depending on the direction. While the other side, or other line, of the limit is concurrently subjected to equal pressures and the resistances to movement of people. Thus, the limit negotiates each part, but each part needs to fit and adapt to the whole, aiming for a sort of balance and equilibrium defined by the *limitanei*.<sup>4</sup> In many cases, it works in a similar way to a hinge, mediating different things, and when one thing changes this affects how others obey the whole. Furthermore, the limit is asymmetric in relation to the line. Sennett and Jacobs refer to the limit as a membrane and Cooper Marcus and Francis as a porous boundary, both relating to a differential relation to, and performance of, the limit in its transversal dimensions resulting in asymmetry. Pavements are in-betweens where each edge is different, presenting asymmetry, and each edge is an asymmetric limit due to the adjacent situations. Again, the linkages- entrances of *L'illa* differ on both sides and within each side.

- 5. Fluctuation.** The balance and equilibrium of the limit is temporary, as the agents and forces that act over time on the limit vary and cannot be controlled or stabilised. This is due to the location and nature of the limit as inhabited and available to the inhabitant, making it changeable. No two experiences are the same and a limit, now, may be the outside and

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<sup>4</sup> The inhabitant has its wishes, needs and desires bounding the limit; the "here", "there" and "over there" and their interrelationship.



later an inside with again a related but different appearance. Furthermore, in some cases, the limit is subject to rhythmic forces or dynamics making changes repetitive; similar but not just the same. Thus, these can provoke changes or fluctuations in spatial configurations. Jacobs and Gehl refer to the bordering uses that are governed by urban rhythms explored by Whyte, and experienced in the façades of the urban case studies. Bobiç advocated typomorphology as a means to record changes in the spatial configurations because of social, economic and cultural factors, or even climate change. Stevens considers the limits of the street that performers inhabit, temporarily changing them. In the *Jardins de Lina Òdena* and *L'illa Diagonal*, motorbikes appropriate the zone along the pavement associated with the kerb, widening the limit for a specific time. In the inlet, nothing is still; the water and wind are elements with great presence displaying and provoking change.

- 6. Ambiguity.** The double limit is complex. In many cases, it appears to us heterogeneous and difficult to pin down. Sometimes it is there and we can see it with great clarity, othertimes we feel it but it is not clear to our eyes. This is the case of the experience of limits in *L'illa Diagonal*. I do not know if I have arrived, asking this as I crossed the building. The shore of the inlet appears as reflective and contested. There was a point where the waves had one profile and the sand beneath had another. The reflections of light through the water were different and the shadow was again different. In this location, a limit was not expected but the experience disclosed a moment where limits were revealed. Ford refers to the blurred boundary consisting of trees, correlating with my experience of the line of trees along the limit of the pavement, providing protections as well as presenting and locating the “there”. The limits of the inlet are especially ambiguous where an undefined strip can be identified. In these cases, the limit records how it is affected by external agents like the wind, and movement of water.
- 7. Topological.** The limit delineates the outside, the outside defines the limit, and the limit also defines itself. In a complex way, it interrelates with different elements and works differently, acquiring different meanings and roles at different scales. Trías, in relation to the being as limit, refers to “here” and “there” but also to “over here” and “over there” defined by the outer rims. These were experienced through unfolding views as we walk, and part of the descriptions of the limits of the case studies are implicit in Cullen’s sequential views, and Pallasmaa, Holl and Pérez-Gómez’s perceptions of a place. The “here”, “there”, and associated terms reveal embedded limits in the inhabited view. It is in the unfolding of views that the grounds correlate, disclose, and dispose the parts and the wholes. This alludes

to the network of borders proposed by the geo-political thinkers I addressed above. The descriptions also display the limit as figure emerging from, and on, the ground in the Gestalt mode providing a dual reading. Bobić, White and Lynch consider the interface, portal and edge as recognisable and delineated entities, yet part of a whole. These entities themselves carry meaning, are able to define, and are also defined, by other parts and the whole, and they are incomplete without the whole.

Some limits may appear to us as simple lines, where the double limit merges with little degree of complexity. But in most cases, the above attributes apply, providing specificity and uniqueness to the limit. The threshold, bridge and border could be described according to the attributes above. However, Trías did not simply enquire about the limit as an isolated phenomenon, but also instigated the limit as an integral part of our existence. His positioning compares to Heidegger's enquiry about existence through dwelling-in-the-world, rejecting the subject-object dichotomy, defining a position and a particular way of enquiring and understanding. Trías' philosophy of the limit proposes that we dwell from, and within, the limit defined by the three topological "sieges"<sup>5</sup> that by nature are immanent and transcendental.

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<sup>5</sup> "Siege" translation from the Spanish term *cercos* which lacks a direct translation into English.



# Part 2: Representation of the Limit





## Representation of the Limit

As outlined in the introduction, the aim of this thesis is to examine how the delineation of limits is experienced in the world in relation to how they are delineated in architectural and urban design drawing.

Accordingly, Part 1 focuses on delineating the experimental limit and concludes with a working definition of the limit and seven attributes. These emerged from surveying and testing the literature of the “idea of the limit” in relation to the three selected case studies. The working definition and attributes are the result of firstly reviewing the canonical authors on the limit in urban design, which then (secondly) informed the subsequent descriptions of the experiential limits of the three case studies. Thirdly, the research turned to the etymology, conceptual and abstract thinking of the limit in philosophy, anthropology and socio-geopolitics informed by the preceding review and descriptions. This part ends by proposing the following definition: The limit is a recognisable, topological, ambiguous, fluctuating, asymmetrical, reflective-contested and joining-disjoining strip. It is a positive “strip” with certain thickness and spatio-temporal qualities. Due to it being a strip, it is inhabitable and presents a double limit; one at each side. Moreover, it has a double nature as it can mediate and integrate as well as separate and disconnect: it simultaneously joins and is a disjunction. The limit is an entity, yet it is topological, in the sense that it is a part of, belongs to, and depends on the whole. The limit is reflective-able to define and determine others- and be contested- be defined and determined by others - contributing to the definition of the whole in two ways. It displays asymmetry due to its duality and also as it is contested and affected by diverse forces from the different parts. It fluctuates through time due to internal and/or external forces aiming for temporary equilibrium and balance. The limit, despite being recognisable, reveals itself as complex and heterogeneous whereby we can clearly see it, but it is difficult to pin-point it.

Thus, the definition and attributes are the framework within which Part 2 is developed, with the particular objective being to survey the literature on the conventions of architectural representation with regard to the limit, and to test these conventions through attempts to draw limits, specifically those identified in the three case studies previously discussed in Part 1.

Part 2 is structured in three chapters. The first chapter 2.1, 'Conventions of Representation', discusses the relevance of drawing as a medium<sup>1</sup> to explore and see within the practice and profession of the architect and urban designer. It presents drawing both as noun and verb; the former correlating with the gap already identified between representations and their referents,<sup>2</sup> and the latter with the experience of drawing and its relationship to experiences in-the-world. Furthermore, it reflects upon the line as a medium in drawing,<sup>3</sup> and its implicit link with the limit, and the scope of the notational system as part of processes of enquiry. Therefore, this chapter sets out the ways representation is understood in this research, and how it will be used to investigate and represent the limits of the cases studies originally presented in chapter 1.2.

The second chapter, 2.2 'Representing the Limit', attempts to graphically represent limits in relation to the three case studies already described in Part 1. An exploration through the representation of the limits is led by the working definition of the limit identified in chapter 1.4 and summarised above and the approach to drawing is set out in chapter 2.1. In contrast to the sequence in Part 1, the case studies are presented in reverse. The landscape case study is presented first, allowing an exploration of the limits in their most raw form, almost free of regulations related to governance,<sup>4</sup> specifically in connection with land management, ownership and domains. The urban case studies follow, with *L'illa Diagonal* presented first due to its higher degree of urbanity and interaction with larger scales. The chapter ends with the middle scale and the more intimate case study of *Jardins de Lina d'Òdena*.

The final chapter, 2.3. 'Interim Conclusion', presents conclusions for Part 2 in relation to the representation and delineation of the limit in drawing and the experience of representing limits through drawings. It concludes by presenting a refined definition of the experiential limit in relation to the one proposed in Part 1, considering the experience of drawing the limit in urban design and architecture.

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1 Jonathan Hill, Alberto Pérez-Gómez, Josep Maria Montaner and Simon Unwin.

2 Robin Evans clearly identified and exposed the gap alongside others like Albert Pérez-Gómez and Louise Pellitier, Dalibor Veseley and Jonathan Hill.

3 Leon Batista Alberti, Wassily Kandinski, Paul Klee, John Berger and Tim Ingold.

4 Governance is 'all patterns of rule', see Mark Bevir, *Democratic Governance* (Princeton, NJ: Princeton University Press, 2010), by which 'we collectively solve societal problems and create social opportunities'. Owen E. Hughes, *Public Management and Administration: An Introduction*, 3rd edn. (Basingstoke: Palgrave MacMillan, 2003) in Louie Sieh, *Questions of Value in the Urban Public Realm* (unpublished doctoral thesis, University College London, 2014). For urban governance and the shift of powers see Ali Madaniour, *Urban Design, Space and Society* (Basingstoke, Hampshire: Palgrave Macmillan, 2014), pp.191-200.

## 2.1 Conventions of Representation

This chapter introduces the role and relevance of drawing in design practice, specifically for the architect and urban designer, as a way of seeing, exploring, representing and communicating, while also recognising its constraints and limitations. It also expands upon the relationship between lived-experience, experience while drawing, and representation in the practice of the architect.

Architects and urban designers typically deploy the noun 'drawing' to cover all graphics, including computer generated imagery. However, this research is limited to the discussion around representations through drawings which are two dimensional, unfinished by nature<sup>1</sup> and mainly constituted of lines.<sup>2</sup> Wassily Kandinsky defines the line as "the track made by the moving point",<sup>3</sup> while according to Leon Battista Alberti, "points joined together continuously in a row constitute a line".<sup>4</sup> Tim Ingold brings together these two concepts by referring to "organic", "geometric" and "abstract" lines.<sup>5</sup> It is also important to acknowledge the inferred notion of the limit in the line. Accordingly, this study is limited to drawings where the line is the primary element and is drawn by hand.

Moreover, drawings are representations, depictions of objects, landscapes, views and dreams

<sup>1</sup> John Berger, *Berger on Drawing*, ed. by Jim Savage (Co. Cork, Ireland: Occasional Press, 2012), pp.3-9.

<sup>2</sup> The first meaning attributed to the noun "drawing" by the Oxford English Dictionary refers to the act of drawing; the verb. Afterwards, it defines the noun "drawing" as "2.a. The formation of a line by drawing some tracing instrument from point to point of a surface; representation by lines, delineation; representation by lines, delineation [...]. 2.b The arrangement of the lines which determine form and 3. That which is drawing; a delineation by pen, pencil, or crayon; a representation in black and white, [...]" correlating with the enquiry of this research. OED Online, Oxford University Press, March 2018, <[www.oed.com/view/Entry/57552](http://www.oed.com/view/Entry/57552)> [accessed 27 May 2018].

<sup>3</sup> Wassily Kandinsky, *Point and Line to Plane*. First published 1926 in German, Dover first edition 1979 (New York: Dover Publications, Inc., 2016), p.57.

<sup>4</sup> Leon Battista Alberti, *On Painting* (London: Penguin Classics, 2004, this version first published by Phaidon Press, 1972 and in Penguin Classics, 1991), p.37.

<sup>5</sup> The geometric line, or the "mark of reason" refers to "the Euclidean line- defined as the connection between two points". Organic lines are "a cultural construct", they "trace the envelopes or contours of things as though they were contained within them: they are outlines". The abstract lines reveal the "inner necessity" meaning "the life of force that animates them and that, since it animates us too, allows us to join with them and experience their affects and pulsations from within". Tim Ingold, 'Looking for Lines in Nature', *Earthlines*, vol.3 (2012), p.49-50.



of things based on our experiences of the things, of how these present to us.<sup>6</sup> Yet, these are just representations and not the “things” themselves, in a similar way that lived-experiences are also not the things themselves. Hence, there is a double divide: 1) the gap between the building (or environment) and the lived-experience presented by the philosophers,<sup>7</sup> which was discussed in ‘Defining and Redefining the Limit’ and, 2) the gap between the building (or environment) and its architectural drawing and/or representation.<sup>8</sup> Over the last thirty years, the latter argument has evolved in different directions due to changes in technology. This has introduced digital and parametric design, and a variety of modes of virtual representation produced by computers, three-dimensional modelling and so on, diversifying the practice of architecture. The scope of this research is to explore relationships between the lived-experience of the existing environment and its representation through the experience of drawing. So, my intent is much narrower than the one tackled by Robin Evans or Dalibor Vesely, who explore the gap between representations of the unbuilt building and the built building.<sup>9</sup> In terms of types of drawings, I consider those similar to the ones considered by the authors above, which are regarded as conventional in the practice of the architect, leaving aside newer digital drawing techniques, which nevertheless also began from the premise of delineation.

This chapter is structured into two parts, firstly covering drawing, followed by modes of representation, and ending with a summary. The first part reflects upon drawing as a medium in architecture,<sup>10</sup> whereas the second part is dedicated to drawing as technique and the associated systems of representation in architecture. The first part is divided into three sections: experience in the drawing, experience of the drawing and drawing as representation with the line as the primary element. The second part is organised in four sections: notation, projective drawings, perspective-views and diagrams-sketches-mapping.

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<sup>6</sup> In ‘Defining and Redefining the Limit’ Martin Heidegger’s two forms of existence of things were presented: available or readiness-at-hand and occurrentness or presence-at-hand.

<sup>7</sup> Like Immanuel Kant, Heidegger, Maurice Merleau-Ponty and Edward S. Casey.

<sup>8</sup> A number of authors have discussed the gap between the building and drawings like Alberto Pérez-Gómez, in his paper ‘Architecture as Drawing’, *Journal of Architectural Education*, 36:2 (Winter 1982), pp.2-7 and Robin Evans, in his seminal chapter ‘Translations from Drawing to Building’ published in his book taking the name from this chapter, *Translations from Drawings to Buildings and Other Essays* (London: Architectural Association, 1997), pp.153-194 (154-160).

<sup>9</sup> See ‘Translations from Drawings to Buildings’ in Robin Evans, *Translations from Drawings to Buildings and Other Essays* (London: Architectural Association, 1997) and Dalibor Vesely, *Architecture in the Age of Divided Representation. The Question of Creativity in the Shadow of Production* (Cambridge, Mass; London, England: The MIT Press, 2004).

<sup>10</sup> Architecture in this chapter also refers to urban design.

## Drawing

Drawing is a noun as well as a verb and the latter refers to the action and process, involving the collaboration and coordination of the hand and the mind. Nowadays, drawing in this sense may designate copying, marking, illustrating, doodling or scribbling, portraying, **exploring**, **generating**, mapping, documenting, **diagramming**, **conceptualising**, sketching, **designing**, **solving**, representing, depicting, **analysing**, assessing, **surveying**, informing, abstracting, **testing** and **visualising**. However, drawing as noun refers to the artefact “as the ‘residence’ of knowledge and understanding (information for others)”<sup>11</sup> and in many cases it is associated with an artefact. Thus, the term drawing may designate a calligraphy, illustration, doodle or scribble, portrait, cartoon, map, **diagram**, **parti**, sketch, **perspective**, **axonomic**, **plan**, **section**, **elevation** or visual idea. Some words in the first list relate to the action of drawing, but may also correlate with an artefact presented in the second list. The highlighted words are part of the practice of the architect and urban designer.

In architecture, Simon Unwin<sup>12</sup> establishes three differentiated modes in which drawings are defined as medium (method), rather than technique: drawing to communicate (construction drawings, presenting ideas to clients etc), drawing to design (as part of the intimate activity of designing) and drawing to analyse (to gain understanding and knowledge). Josep Maria Montaner<sup>13</sup> considers a fourth mode, drawing to conceptualise. In order to design, the architect or urban designer registers and interprets data from the experienced world through the use of tools (drawings) allowing them to move between the world of concepts and ideas into the world of forms (or architectural space) and experiences and vice versa. The deployment of these tools facilitates a triangulation and messy encounter between the world of abstraction and the world of complex lived-experiences and the “intentions, actions and practices” of the designer. For Montaner, “tools” refers to the broad sense of drawings, encompassing sketches, diagrams, orthographic drawings (plans, sections and elevations) and the like, but mainly constituted of lines.<sup>14</sup>

<sup>11</sup> Simon Unwin, ‘Analysing Architecture Through Drawing’, *Building Research & Information*, 35:1 (2007), pp.101-110 (p.102).

<sup>12</sup> *Ibid.*, p.102

<sup>13</sup> Josep Maria Montaner, *Del Diagrama a las Experiencias, Hacia una Arquitectura de la Acción* (From the Diagram to the Experiences, Towards an Architecture of Action) (Barcelona: Editorial Gustavo Gili S.A, 2014), p.7.

<sup>14</sup> The reluctance to narrow the broad and imprecise term drawing is due to two reasons: 1. Even though I have an idea of what cartoons, sketches, maps and diagrams are, when I define them and examine them by getting into the detail, the distinction becomes somewhat blurred. 2. Because many architects move between drawing types freely and in a fluid way without paying much attention to which type they are working on, instead focusing on the content. They may start mapping to get some understanding and then

It was during the Italian Renaissance in the fifteenth century that drawing was introduced to architecture and deployed in a systematic way, redefining the way architecture was produced and promoted by the profession of the architect. At that moment, the perception of drawing changed to be understood as a truthful three-dimensional representation of the world, locating the viewer outside.<sup>15</sup> The roots of the term “design” lie in the Italian term *disegno* meaning “bind-ing the drawing of a line to the drawing forth of an idea” indicating a correlation between the idea and the thing.<sup>16</sup> Thus, the action of drawing is used with different intents and meanings. It is a way to see/describe/analyse, visualise and explore thought (generate and propose), assess, propose, solve... All these are actions of the mind and intellect, similar to the way in which the philosopher deals with the medium of writing. The sculptor, as Evans points out, deploys drawing as part of his design process but this is to assist or inform the final object, which is what takes most of their time, in contrast with the architect, who spends most of his time drawing when this is usually not the final outcome.<sup>17</sup>

If the drawings convey a description or analysis of a building or place, these are merely representations and there is a gap<sup>18</sup> between the drawings and the building or place they represent. Evans argues that drawings consequently have different attributes and the power of drawing, as a medium, lies in its “distinctiveness” and “unlikeness”.<sup>19</sup> The power of drawing also lies in the moment when the drawing becomes. Berger explains that “drawings reveal the process of their own making, their own looking, more clearly”<sup>20</sup> and whilst one is drawing, this reaches a critical point when “what I had drawn began to interest me as much as what I could still discover”<sup>21</sup> or I understand that I need to move on to another drawing but the first one will

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without thinking too much about it or even noticing, move to diagramming or sketching.

<sup>15</sup> Through time this conception has evolved but even nowadays the relation between building and drawing is unclear and, in most cases, it is particular to each designer. Jonathan Hill, ‘Drawing Research’, *The Journal of Architecture*, 1:3 (2006b), pp.329-333 (pp.329-330).

<sup>16</sup> *Ibid.*, p.330 and Jonathan Hill, ‘Drawing Forth Immaterial Architecture’, *Architectural Research Quarterly*, 10:1 (2006a), pp51-55 (p51).

<sup>17</sup> Evans, p.156.

<sup>18</sup> The gap between the experience of the building and of the drawing lies in what differentiates them. The experience of the building is an experience of embodiment where person and artefact come together. Furthermore, the artefact allows inhabitation enabling experience provoking feelings and moods in the person taking place in time and centring with the now; present. There is no specialist skill involved; just the condition of being. Conversely, drawings are removed from the artefact; there is a distance between both. The drawings trigger experiences and feelings on the person who reads them. These are based on past experiences and on the capacity of the person to imagine and interpret the drawings determined by the skill of reading drawings. Drawings are based on the past whilst looking to the future and the present takes a second place.

<sup>19</sup> *Ibid.*, p.154.

<sup>20</sup> Berger, p.70.

<sup>21</sup> *Ibid.*, p.8.

inform which type of drawing to make or where to start with the following one. The drawing is a medium to reveal and display, allowing the thing to be discovered in Heidegger's words.<sup>22</sup> Berger insists that "to draw is to look, to examine the spectrum of appearance. A drawing of a tree shows, not a tree, but a tree-being-looked-at [...] Within the instant of a sight of a tree is established a life-experience."<sup>23</sup>

### The Experience in the Drawing

The conception of the phenomena of experience is that experiences are personal, unique in the sense that they belong to the person who experiences them and are fixed in time. Experiences, here, are understood within three different but interrelated modes presented by Montaner<sup>24</sup> and close to the definition of "experience" provided by Merriam-Webster (1.a, 1.b, 3 & 5):<sup>25</sup>

1. Experience founded on the act of dwelling; human beings apprehend and understand the world (reality) by being-in-the-world. It provides the capacity for designing, analysing, exploring and so on based on or informed by previous lived-experience;
2. Experience gained through perception related to the cognitive process based on the organisation, identification and interpretation of the stimulus received from the senses;
3. Experience acquired through open, honest and intentional experimentation attained from doing or making.

Thus, the emphasis is on the act of being-in-the-world, the perception of the senses and in experimentation. "However, it is wisdom and memory which allow us to accrue knowledge from the wise preparation, interpretation and integration of experience".<sup>26</sup> The architect

<sup>22</sup> Martin Heidegger, in his essay, 'The Thing' in *Poetry, Language, Thought*. (first by Harper & Row, New York, 1971; New York, Perennial Classics, 2001), pp.161-184, reflects upon the qualities of the thing; what the thing is in itself, what "leads to the thingness of the thing" (Ibid. p165). Heidegger explains through the example of a jug that we attain "the thingness of a thing", by understanding its being and through its becoming. In this case, holding the jug relates to the being and the notion of outpouring. The outpouring stems from the twofold becoming of the jug: taking and holding. This latter condition is about the "self-concealing" manifesting its *presencing* overcoming the first visual appearance that it is far from satisfactory and perhaps, superficial. Thus, it is after we dwell further on its being when we reach and feel its *presencing*. The "dwelling further" is provided by the drawing(s) and through the experience of drawing allowing for the "thingness" of the thing to be disclosed and attained. Berger relates to the experience of the thing through drawing saying that "a drawing of a tree shows, not a tree, but a tree-being-looked-at".

<sup>23</sup> Berger, p.71.

<sup>24</sup> Montaner, p.77. His work is not available in English and it is taken from the original source in Spanish and the translation involves a degree of interpretation by the researcher.

<sup>25</sup> "Experience." Merriam-Webster.com. <<https://www.merriam-webster.com/dictionary/experience.com>> [Accessed May 27 2018].

<sup>26</sup> Montaner, p.77.

operates within these three modes in an ad hoc and interconnected manner. Here, I offer a simple illustration of how an architect might deploy experiences, aiming to reach a better understanding of the three modes presented above.

An architect who has been commissioned to build a house on a specific plot tries her best to make time to dwell on the site; she may visit the site while being mentally open to allow the site to “talk” to her without posing questions, but instead just paying attention to the stimuli as-lived. Another architect may also visit the site but will dwell on the site posing direct questions in relation to size, scale, orientation, topography, nature, relation to street and so on. In either case, they may or may not take notes, sketches or photographs to record their experiences. Additionally, the architect, as with most human beings (including the client) already has experiences related to houses and dwelling in them. Therefore, they have experiences from being-in-the-world. These lived-experiences will be organised, identified and/or interpreted in a complex way, forming, informing or modifying their perception when deploying the second mode of experience. Afterwards, or in parallel, the architect marks-up measurements of the site on a map. These metric measurements may correlate or differ from measuring on site; based on their body, they may realise that the topography, changes of levels between different points of the site are considerable. They may then decide to draw some sections to see, and therefore understand, the topography from a different approach. At this point the architect starts experiencing the site via the process of experimenting through doing: drawing, modelling, taking and modifying photographs, sketching...The stages presented above may take place in a different order and may be repeated over and over, generating many ideas and developing them, but the three stages apply even when we simply conduct analysis. Hence, there is a direct relationship between experience and drawing, as artefact and the act of drawing but these are different.

José Luis Borges, in the preface to *Obra Poética*, says:

*“the taste of the apple...lies in the contact of the fruit with the palate, not in the fruit itself; in a similar way (I would say) poetry lies in the meeting of the poem and reader, not in lines of symbols printed on the pages of a book. What is essential is the aesthetic act, the thrill, the almost physical emotion that comes with each reading.”*<sup>27</sup>

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<sup>27</sup> José Luis Borges, Foreword to *Obra Poética* in Juani Pallasmaa’s essay *An Architecture of the Seven Senses* in Steven Holl, Juhani Pallasmaa, Alberto Pérez-Gómez, *The Question of Perception. Phenomenology of Architecture* (San Francisco, William Stout Publishers, 2006), p.28.

Borges tells us that the taste comes with the experience; in this case in the physical contact between subject and object. This experience is individual and unique as he indicates at the end by noting “that comes with each reading”. Each person will experience it differently depending on their interpretation and depending on temporal aspects such as the day, time, mood...The words and their relationships will trigger a set of emotions but these will be different each time, not just depending on the personal but also on the temporal aspects. Therefore, in a similar way, the experience of a drawing is read and interpreted differently by each person, each time due to temporal cues in multiple ways. Everybody has experiences of drawings as they do of poetry, but in both cases, the person’s knowledge and interests determine the reading and interpretations, and these can be as valid as the ones from the poet and architect themselves. Moreover, the distance or proximity between the readings and interpretations and experiences differ between the author and the layperson who experiences.

### **The Experience of Drawing**

Drawings are born of experience. They can emerge through reverie<sup>28</sup>, the act of doing as Merleau-Ponty says, “we know not through our intellect but through our experience”.<sup>29</sup> Drawings are interpretations based on experiences by those that make them and later on are re-born with a re-interpretation by those who read them. The sketch or diagram (drawing) produced during a site visit may be different to the one made in the studio two days after the visit, but both sets of drawings “contain(s) the experience of looking”.<sup>30</sup> The site sketch is a temporal snap determined by its intensity and quickness. I may make a sketch whilst standing uncomfortably in the heat, which contrasts with the diagram made while sitting in the air-conditioned studio, which has itself emerged from reflective work, through the comparing and crossing of information between documents. This diagram has a different temporality to the one made on site - each has been made at a specific moment. Furthermore, it takes time to draw, thus the drawing embraces the experience of drawing and “encompasses time” in Berger’s words. In one case, it captures a moment and in the other it includes the time taken for reflection. It is impossible to separate the impressions and interpretations of the site visit prior to making the diagram from the diagram itself. This is another interpretation, another experience.

<sup>28</sup> This term is understood in the sense explained by Gaston Bachelard in his book *The Poetics of Reverie. Childhood, Language and the Cosmos* (Boston: Beacon Press, 1971), pp.159-160.

<sup>29</sup> Maurice Merleau Ponty, *Phenomenology of Perception* (London & New York: Routledge Classics, 2002). First published in French in 1945; English first edition published 1962 by Routledge & Kegan Paul, translated by Colin Smith.

<sup>30</sup> Berger, p.70.

Sometimes, the architect thinks very carefully about what to draw, how to draw it, where to start and where to make the first mark. However, one drawing comes after another; some are quick and others are very slow, taking days with resting time within the process. Yet, the architect usually reaches a point when the drawing itself triggers what and how to draw with little active thinking involved. This is part of the experience of drawing and a way in which the drawing “encompasses time”.<sup>31</sup> Drawing is reverie; the hand feels like an extension of the mind, it is the “thinking hand” that Pallasmaa presents very eloquently.<sup>32</sup> Thus, drawing- the artefact- “comes out” experimentally-from the act- and in many cases, it comes out of a need or an intention of that specific moment. The architect needs to resort to diagrams, working in layers, sketches, drawings deploying the conventions and technical notations that somehow do or at least determine or guide the thinking. The drawing is partial, subjective and experiential. As Unwin indicates, “there is no a clear boundary between drawing and architecture”<sup>33</sup> or environment.

### **Drawing as Representation**

Drawings and paintings are “simulations” based on our experiences and René Magritte expresses this idea with the caption of his well-known painting of the pipe. “Ceci n’est pas une pipe” it says, stating the obvious fact that the painting of a pipe is not a pipe but rather its representation. Our reality is our representations through which we participate in the world and to represent is a “result of our ability to experience, visualize and articulate”.<sup>34</sup> Evans<sup>35</sup> points out how distinct and unlike drawings are from what they represent and compares them to translations. “To translate is to convey”; it is to transfer something whilst allowing for limited alteration. No translation is literal to the original due to the peculiarities of each language which are reflected in the meanings, use of words and grammar. Therefore, the original meaning of the text is twisted and turned. Something may be lost or added and to a greater or lesser degree. This depends on how different the language of the original text is in relation to the language of the translated text but also on the knowledge of the languages in question and the personal interpretation of the translator.<sup>36</sup>

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<sup>31</sup> In Berger’s words “a drawing or painting forces us to stop and enter its time. A photograph is static because it has stopped time. A drawing or painting is static because it encompasses time”. *Ibid.*, p70.

<sup>32</sup> Juhani Pallasmaa, *Thinking Hand*, (Chichester, West Sussex: John Wiley & Sons Ltd. 2009).

<sup>33</sup> Simon Unwin, *Analysing Architecture*, 4th edn. (Oxon, New York: Routledge, 2014).

<sup>34</sup> Dalibor Vesely, *Architecture in the Age of Divided Representation. The Question of Creativity in the Shadow of Production* (Cambridge, Mass; London, England: The MIT Press, 2004), p.4.

<sup>35</sup> Evans, p.154.

<sup>36</sup> It is worth pointing out that a building is the “thing” in the world, which is revealed to us as we experience it and it allows for inhabitation. Our understanding of it comes directly from the lived-experience which

During the Italian Renaissance, Filippo Brunelleschi initiated and later Leon Battista Alberti developed the technique of the revolutionary linear perspective, introducing the principles of depicting the three-dimensional world on paper in a measurable manner by introducing depth into the drawing.<sup>37</sup> Thus, from then on, the painter and architect see the world through drawings that are considered depictions of the world, defining the new perception and the intellectual recognition of *disegno* bound to the act of drawing (as mentioned previously). Heidegger proposes the title *The Age of the World Picture* for his essay based on the seventeenth century turn and development in visual arts. This was accentuated by the introduction of optics through the camera obscura and camera lucida, influencing and reflected in philosophy.<sup>38</sup> During this time, the modes of representation diversified and the image became a way of describing the world, “The world itself is picture-like”. In Heidegger’s view, “the world (is) conceived and grasped as picture”.<sup>39</sup> The world-as-picture is there to be represented in the canvas or maps. The painter or architect may decide to mirror the image or instead to “replace” some features without aiming to mimic, providing a new home on the canvas or map as a “place-of-representation”.<sup>40</sup> Hence, the view of the representation of the world-as-picture is compatible with the re-representation on the canvas. So, different representations live alongside each other.<sup>41</sup>

Furthermore, it can be argued and agreed that the world grasped as picture/image is learned. This is true for the architect who sees through images, frames and drawings, which are or can be layered, juxtaposed and interrelated, moving between the view of the detail to the whole. This concept has been influenced and developed over centuries by the modus operandi of the arts and the introduction of photography. Paintings, photographs and drawings are still shots- even

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triggers and leads our thinking. Nevertheless, the drawing is a representation of the “thing” informed by the reflection of the experience. Thus, in this case, reason is the hinge between the experience and the thing while in the former case, experience is the hinge. This relates to Trías’ three sieges presented in the chapter ‘Defining and Redefining the Limit’ and how this act taking different relative positioning. Therefore, the translation is a clear metaphor but perhaps the proximity between the two translation is much greater than the drawing and building.

<sup>37</sup> Vesely, pp.144-145; Peter Bosselmann, *Representation of Places. Reality and Realism in City Design* (Berkeley, Los Angeles: University of California Press, 1998), p.4; Pérez-Gómez & Pelletier, chapter ‘Prelude’ in presents the development and controversies around the evolution of representations with a focus on the discrepancies between the object represented and its representation.

<sup>38</sup> Influencing some renowned philosophers like René Descartes 17<sup>th</sup>, John Locke 17<sup>th</sup>, David Hume 18<sup>th</sup>, Heidegger 19<sup>th</sup>.

<sup>39</sup> Edward S. Casey, *The Representation of Place. Landscape Painting & Maps* (Minneapolis: University of Minnesota Press, 2002), p.233.

<sup>40</sup> This correlates loosely with the two drawings modes of the architect: imaginative and notational, as identified by Nelson Goodman in his book *Languages of Art . An Approach to a Theory of Symbols* (Indianapolis, New York, Kansas City: The Bobbs – Merrill Company Inc. 1968).

<sup>41</sup> Casey, p.234.



though they include a temporality and in many cases an intention- of moments of the world as memories. Thus, the world “comes to us as framed and frameable” based on the *Weltbild* (translated as “world picture”) of Heidegger.<sup>42</sup> The word *Weltbild* refers to the world that comes framed to us and the painter and architect with their drawings re-frame the experienced frames, providing an inside, a “re-presentation” of what has already been framed, and every re-framing provides a different inside. The re-frames in Casey’s words “are at once an ordering and a revealing, a limitation and a delimitation”.<sup>43</sup>

Hence, drawing is similar to translating in the sense that there is a distortion between the original and the translation. However, drawing and translation differ in that drawing can provide multifaceted translations, which can involve a mixture of modes of representation to be read simultaneously, in a layered form or one after another aiming for additional accuracy. Yet, representations are partial<sup>44</sup> as the world (reality for some) is rich and complex and representations are not the same as the thing itself, or the experience they represent. Bosselmann (1998) also explains simply and clearly the slight discrepancies that exist with linear perspectives and photographs in relation to the real world. So, for validity of representation, it is crucial that the deployment of modes of representation avoids relying on a single one, and we cannot forget the importance of the line in visual representations and especially in drawings.

## The Drawn Line

As noted earlier, drawings are mainly made up of lines. Therefore, what are lines and how are these understood in the drawings of the architect?

The anthropologist Ingold opens his book *Lines: A Brief History* by saying that “lines are everywhere”.<sup>45</sup> I walk on a line, I walk along paths, metaphorically my life is a path, my eyes define things through lines, I draw with lines. When I ponder, one thought emerges after another and these are experienced lineally. Wrinkles are lines...There are many types of lines;

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<sup>42</sup> Ibid., p.234.

<sup>43</sup> Ibid.

<sup>44</sup> Steen Eiler Rasmussen says “Architecture is not produced simply by adding plans and sections to elevations. It is something and something more” in *Experiencing Architecture* 3rd edn. (Cambridge: The M.I.T. Press, 1978), p.9; Bosselmann starts his book saying “Pictures do not mimic what we see. In fact, no optical system exists to mimic the tasks performed by our eyes. [...] Picture taking, film [...] linear perspective, a technique that offers a somewhat limited representation of reality” p.3; Steven Holl refers to “the limits of two-dimensional representation” in his essay ‘Questions of Perception. Phenomenology of Architecture’ in Holl, Juhani Pallasmaa, Alberto Pérez-Gómez, *The Question of Perception. Phenomenology of Architecture*, (San Francisco, William Stout Publishers, 2006), p.41.

<sup>45</sup> Tim Ingold, *Lines. A Brief History* (Oxford: Routledge, 2007).

some are straight, and others have curves. For Alberti, the line is constituted by “points joined together continuously in a row” and this can be divided.<sup>46</sup> This definition is similar to the one deployed in geometry but it is also, to give a lived-experience example, reminiscent of walking on the beach. The body moves in a line and this is registered on the sand by the imprint of my feet on the sand, showing as dots marked on the sand. Nonetheless, my eyes join the dots together, materialising the “linear” movement of the body. Thus, this notion of movement in a line is captured in Paul Klee’s quote that the line is a dot that “goes for a walk”<sup>47</sup> and also in Kandinsky’s definition of a line as “a track made by the moving point”.<sup>48</sup> Kandinsky adds the term “track” to the elements of the point and movement. Tracks are marks<sup>49</sup> on the territory like the imprints of my feet left behind on the beach. Kandinsky’s and Klee’s line is the result of the transformation of a point in movement into a line where the continuous or discontinuous, variable or invariable movement characterises the line and this force (movement) resides in it in the form of tension. If just one force is applied, then the line is straight and if more forces are applied then the line is curved. I can add that if the force is variable and of a certain manner, this shows in a variable thickness along the line and if diverse forces intervene and fluctuate in intensity, it results in a curved and irregular line. This is very much felt when I draw lines and these forces are recorded and retained and somehow retrieved, implying that the line bears.

Ingold approaches the notion of the line from a different viewpoint. He identifies three different categories of lines: the geometric line, the organic line and the abstract line. The geometric line is the mark of the mind based on Euclidian geometry. In its origins, this interrelates the world of experiences and reason, but geometry developed into the “art and science of optics”, thus moving away from tangible relations towards intangible ones. This line unites and it is founded on a double reading: “lines of sight” which Alberti conceives as threads between the thing/object and the eye and the line as a “vector of projection”. This latter line connects and set limits, is precise and concise in content and is in the foundations of law, reason and analysis.<sup>50</sup> The organic line is a “cultural construct” and refers to the “outline” used in pictorial drawings like sketches. This line materialises the edges of objects, creates outlines that separate and divide as if these “were contained within them”. So, this line bears as retains and supports yet it does

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<sup>46</sup> Alberti, p.37.

<sup>47</sup> Paul Klee, *Notebooks, Volume 1, The Thinking Eye* (London: Lund Humphries Publisher Unlimited, 1961), p.105.

<sup>48</sup> Kandinski, p.57.

<sup>49</sup> In the chapter ‘Defining and Re-defining the Limit’ and first section on the ‘Etymology of the limit’ the mark is tacit to the action of drawing and the concept of the limit and the line is included in the definition of the boundary and edge.

<sup>50</sup> Ingold, *Looking for Lines in Nature*, p.49.

not exist as it has no “presence on or in the things themselves”, it is an illusion. In Francisco Goya’s words as recalled by Ingold, “these are impositions to the mind”, it is artificial and made-up. Maps include both geometric and organic lines as they join projected dots and the act of joining creates outlines featuring the environment.<sup>51</sup> The third category of lines is the abstract line based on Gilles Deleuze & Felix Guattari’s idea of topology, related to their argument around the notion of the smooth contrasting with the striated. Ingold borrows this idea to conceptualise the lines of the meshwork and smooth line.<sup>52</sup> He explains the abstract line further by deploying Kandinsky’s signification of abstract to reveal the “inner necessity” to reach the essence of things, leaving aside appearances and purely figurative components. Hence, this line also bears. This does not mean we must renounce all geometric or organic lines but to abstract the superfluous lines and perhaps others may be added. Leonardo da Vinci also talks about this- to look for the line that generates by shaping, determining, producing and/or proposing like an axis through which the whole relates to, expands from/reduces to, or can be understood. This is a line of enquiry, that generates and bears and is somehow always there. This line “is not here nor there, neither in this place nor that, but always between or behind whatever we fix our eyes upon”.<sup>53</sup>

I am an architect and I have been involved for years in architectural education and it is clear to me that thanks to their training, architects see the “world as picture-like” through frames and through years of training, develop the skill of enquiring and proposing with lines. They deploy the three different types of lines presented above in a complex and undifferentiated way. Lines unite and separate, generate as well as bear, which the architect deploys as in the “drawing forth” of Hill. For the architect, the line is a tool and they are aware that no lines are to be seen, either in experience or in the environment. They know that representations are merely representations and these are partial and they rely on re-framing to apprehend the world. Drawing is their technique and iteration their method. They practice broad modes of drawing including imaginative and normative<sup>54</sup> both constituted by the line. They draw and re-draw, perhaps using the child’s way of learning.<sup>55</sup> With the act of re-drawing and re-presenting, they omit some

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<sup>51</sup> Ibid., pp.49-50.

<sup>52</sup> Deleuze and Guattari reflected upon the transition from embroidered fabrics to patchwork and these helped to define the principles of striation and smooth. Ingold applies similar thinking to the meshwork. Ibid., p.49.

<sup>53</sup> Ibid., p.50, based on Merleau-Ponty’s *Eye and Mind* and quoting Leonardo da Vinci.

<sup>54</sup> Classification based on Nelson Goodman.

<sup>55</sup> Unwin relates the practice of the architect with the act of learning through playing of the child “To a large extent the language of architecture is the language of drawing. And if, [...] you find yourself with no pencil and no paper, you can always draw your ideas with a stick on the ground. And if you draw them big enough- like a child with leaves in the playground-they just about become works of architecture in

lines while adding others, thus reaching a deeper understanding. Moreover, they have learned drawing conventions implemented and developed over centuries and these are central to the core of their practice and thinking.

## Modes of Representations

Lines are everywhere and nowhere<sup>56</sup> but they exist as a social construct.<sup>57</sup> They are embedded in the practice of the architect. So-called “primitive art” in caves from ancestral civilizations are composed of lines, already showing the practice of using lines as signs correlating with their referents. At a very early age, children make marks; marks on sand, on paper and these probably result from exploration, observation and mimicking the practices of others. Letters are first learned as drawings or marks.<sup>58</sup> It takes some time to see them as signs with associated sounds and names. It takes much longer to learn how these signs are combined in the same manner as speech, thus acquiring meaning. When this happens, the “notational” system is acknowledged, and the skill of reading is acquired.<sup>59</sup> Thenceforth, children practice “marking” by copying the signs of writing and once they are proficient with marking they can acquire the skill of writing.<sup>60</sup>

Students of architecture are introduced to the open architectural notational system based on the science of optics: projection and geometry<sup>61</sup> that contain a high degree of prescription, which they carry on developing and adapting creatively through drawing. Accordingly, for the architect, drawing is a practical and acquired skill that requires and enables thinking. It allows them to translate experiences into representations and vice versa. They move between the tangible and the abstract as part of the design process as a method of enquiry. The translation differs from the original and this is determined by the accepted notational system. The architect produces imaginative and normative drawings. The former refers to types of drawings that do not follow norms, or transgress norms, whereas normative drawings follow the notational

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themselves” Unwin, p.23-24.

<sup>56</sup> Lines represent without themselves existing on the drawn apple, the tree, the sea, the mountain. Nonetheless, they exist in the eye of the architect who sees with/through the line.

<sup>57</sup> Ingold’s organic line.

<sup>58</sup> Children usually learn independent sounds. They pick individual sounds and repeat them until they master them customising the muscles and taking them a few years to master the art of speaking their own language.

<sup>59</sup> Ingold, *Lines. A Brief History*, pp.120-123.

<sup>60</sup> Here writing is not just used to copy a text or a word, but for the child to be able to write the words she can learn and deploy them to her own will.

<sup>61</sup> Evans says “architects do not produce geometry, they consume it”. See, Robin Evans *The Projective Cast. Architecture and Its Three Geometries* (Cambridge, Mass: The MIT Press, 1995), p.xxvi.

system and conventions. In the propositional phase of design, drawing is intentional allowing and focusing the enquiry. The architect may move in a fluid and unorthodox, but intentional,<sup>62</sup> way between imaginative and normative drawings. Bernard Tschumi and others push the notion of “normative” representation, proposing new ones, or at least variations from the conventional, allowing students to think differently, determining interpretations (frames), propositions and designs. Thus, the notational system provides prescription and consistency, determining ones thinking but also allowing for change.

## Notation

Music, dance and architecture, have their own notational systems that have emerged and developed within their ethos, needs and practice. For musicians who interpret music with their instrument, the notational system on the stave, supplemented with careful notations providing information related to the speed and character of the music, provides a high level of prescription, leaving little to the discretion of the musician as the interpreter. Nonetheless, the virtue of the interpreter lies in the proficiency of playing the instrument, their ability and sensibility to “read the music” and deploy their discretion in a unique and empathetic manner in relation to the specific piece of music.

However, the composer John Cage deploys and conceives of notation differently. He sustains the interdependence between ideas and notation (as it is a way of naming). However, ideas are able to re-define the notation system as well as determine the development of ideas. Cage, when he was asked if he first thought about notation or sound, replied that he thought about both. For him, both were “interdependent and inseparable”.<sup>63</sup> Therefore, the notational system is, to some degree, a constraint but many see it as an enabler which is changeable and adaptable.

In architecture, the relationship between the depiction deploying the notational system and the building is similar to music. The interpreter of drawings works within a similar framework as the musician who interprets musical scores. The designer as the composer is able to bend and adapt the system to particular aspirations and needs which may vary from project to project whilst this is also used as a method of enquiry.

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<sup>62</sup> Intention is guided by the inquiry; notion or problem that the architect is exploring.

<sup>63</sup> John Cage sustains that “‘Musical ideas’ and ‘notation’ are separated as a matter of convenience. They are actually interdependent- inseparable. Since my musical ideas are always changing, so does my notation”. John Cage, *Notations* (New York: Something Else Press, 1969), p.33.

## Projective Drawings

Rasmussen refers to the controversy about the difference between the projective drawings deployed by the architect and the experience we have of architecture. He says that “no other art employs a colder, more abstract form, but at the same time no other art is so intimately connected with man’s daily life from the cradle to the grave”.<sup>64</sup> Projective drawings are associated with normative drawings and are a set of orthographic projections on a surface that create two-dimensional representations and are based on a descriptive geometry. These represent space as “geometrised”, measurable and homogeneous with an inherent degree of reduction and abstraction. These were based on the ideologies of the nineteenth century and they are referred to as “architectural drawings”. These drawings are the result of dissecting the studied and represented object through the projection of strategic cuts allowing measurement. These are perceptual as well as artificial, as we never experience them as drawn. However, these sets of descriptive projections are estimated to be objective, accurate and unambiguous, working as trustworthy transcripts of the building. These projections communicate or prescribe and, in many cases, bind the architect contractually. Therefore, they need to be clear with no place for ambiguity.<sup>65</sup>

Nevertheless, architectural drawings are also used as part of the design process. The architect is trained to see and explore through these drawings despite the fact that these depictions do not directly correlate with our experiences as observer. Furthermore, the artificial set of projections mainly relying on the line “evoke(s) temporality and boundary. Defining the space between light and darkness, between the Beginning and the Beyond, it illuminates the space of culture, of our individual and collective existence”.<sup>66</sup> Thus, the projections enable the architect to explore the influence of shadows on a space; decide how this determines space in a specific manner and time. The projected line allows room for defining where the room ends but also where it begins and places the wall as an element; and this makes room for beings to dwell, determining where this starts and ends, enabling and defining their individual and collective existence as well as providing meaning.<sup>67</sup>

Architectural drawings offer a view of the parts and the whole at a scale. Some explain scale as size whereas scale also relates to the ratio of representation in relation to actual measurement.

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<sup>64</sup> Rasmussen, p.14.

<sup>65</sup> Alberto Pérez-Gómez, *Questions of Representation. The Poetic Origin of Architecture*, p.217.

<sup>66</sup> *Ibid.*, p.218.

<sup>67</sup> The line and the reading of the drawing that Pérez-Gómez proposes is close to the notion of the

For example, when surveying a straight wall measuring 10 metres, if this is depicted on paper with a straight line of 10 centimetres, it corresponds to the scale 1:100. Scale allows the architect to draw parts of buildings and compare them and consider the building as an entity, a whole. He sees all the rooms together with their relative size defining “proportion” and spatial configuration, both inform composition and rhythm.<sup>68</sup> Hence, the scale determines how big or small the depiction is and this determines the level of detail to be included, that is, how much to draw. How much to draw determines how much can be explored, in turn informing which aspects or issues are studied at each scale. Furthermore, an element may be represented differently depending on the scale. A wall in a building is depicted with a single line when drawn at 1:1000 or 1:500 but this becomes a double line with a space between (contained) when drawn at 1:100 and when drawn at 1:10 or 1:5 this double line includes many other lines depicting the specific materials that comprise and define it.<sup>69</sup> At this scale of detail, the lines are complemented by written notations specifying what they represent. The re-presentation of the wall re-framing it at different scales defines it becoming a wall.<sup>70</sup> This wall may be re-defined and may host different meaning/s when read in conjunction with other walls, stairs or elements. Thus, the architect’s line is topological in the sense that it is determined by relationships as a consequence of relative positioning (in many cases of proximity) and through the diverse roles acquired at varied scales defining meanings. These relationships are established, explored and identified through the contextual (in relation to) depiction at scale and with the scales. These relationships could not be designed or revealed in the analytical process if the medium of projective drawing was missing, despite the discrepancies with lived-experience.

Projective drawings- plans, elevations and sections- if necessary, can be assembled to form a three-dimensional view- axonometric- of the depicted object. Its peculiarity is that the viewer is placed in infinite space as parallel lines do not meet at the horizon, in contrast to perspectives. There are many variants on axonometrics depending on the location of the viewer in relation to

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boundary by Heidegger presented in his essay *Poetry, Language, Thought*, p.152 already quoted in the chapter ‘Defining and Redefining the Limit’ in this thesis.

<sup>68</sup> Charles W. Moore, Greald Allen, *Dimensions. Space, Shape & Scale in Architecture* (New York: Architectural Record Books, 1976), pp.18-24.

<sup>69</sup> Defines, here, refers to what makes it; provides its physiognomy defining its appearance as well as its performance. It can be a wall that does not allow heat or noise through or it can be a wall that allows light and noise though.

<sup>70</sup> Ingold, in his book *Being Alive*, differentiates between the materiality of things and materials becoming things and he refers to how the kite discovers the currents of air whilst in the air thus becoming alive. In architecture we can talk about the materiality of an element or the materials deploying one of their qualities, taking a specific position in relation to other materials and due to this specificity, it becomes a thing or part of a thing defining the materiality (Tim Ingold, *Being Alive, Essays on Movement, Knowledge and Description* (Abingdon, Oxon: Routledge 2011), pp.179)

the object; above, below, at 45 degrees and so on. The axonometric provides a nearly complete view of the object whilst the object is rarely shown within its landscape or wider context.

### **Perspective – Views**

On the one hand, the projective drawings, including axonometric as discussed above, represent lines as these exist in the real world with little correlation to how the representations are experienced or known by the eye. This type of representation completely removes the viewer, offering a specific type of representation. On the other hand, the perspective aims to depict the world as the eye experiences it and the linear perspective, founded on the *perspectiva naturalis*, is based on rays of light reflecting from the object or view passing to our eyes. Perspective is an optical illusion of a three-dimensional image placed on a two-dimensional surface, placing the viewer outside yet without removing them. A direct consequence is the framing of the view already presented previously in this chapter. Nonetheless, the drawing method of the linear perspective produced views that differ slightly from “reality” as Bosselman has eloquently demonstrated.<sup>71</sup> Nevertheless, it is still a valid method to deploy provided that we are aware of the limitations and advantages.

The linear perspective is rooted in geometry, but was developed in the fifteenth century within the arts, mainly in painting, instead of within mathematics. It fed into architecture as at that time many painters were also architects. It is based on projection and cuts as with projective drawings, but instead its main property is the depiction of the profundity of the view. Another divergence from projective drawings is that linear perspective relies on vanishing points, usually between one and three, located on the imaginary geometric horizon.<sup>72</sup> The geometric horizon is conceived as an imaginary plane at the eye level of the beholder. This intersects with the vertical parallel plane where the view is projected, and it is represented by a line extending outside the drawing where the vanishing points are placed. The depth of the view is established between the position of the eye and the vertical plane where the geometric horizon line is established. Vanishing points enable objects to be represented in their relative size depending on their position within the view, thus depicting distance whereby an object close to the viewer seems bigger.

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<sup>71</sup> Bosselmann, pp.7-9.

<sup>72</sup> Geometric horizon is distinct to the experienced horizon. The former is a line on paper able to structure the view and it is located by the eye level and in a symbolic manner the line directly interrelates the view and viewer.



In painting, the figure-ground relationship has always been dominant, and the introduction of linear perspective developed this relationship further, and this has moved into architecture. This has informed the figure-ground map and also the more recent understanding, reading and relationship of background, middle ground and foreground in the “perception of space” of Holl and implicit in the “here” and “there” of Cullen. Perhaps this perception is even more evident and pertinent in photography because, when taking a picture, the photographer decides what should be in focus and out of focus. This way of manipulating the depth of field of a view results in the photographer effectively deciding what has priority and what is merely supportive.

Photographs present framed views with an implicit geometric horizon. These are particular representations of the reality, slightly differing, where the amount of difference is established by the type of camera and particularly the type of lens. Framing is thus an implicit characteristic shared with linear perspective, where the viewer is left outside but not removed, as in both there is a direct link with the geometric horizon.

In a similar way to drawings, perspectives are constituted of lines. Some photographs can easily be reproduced with lines but not always. Perspectives and photographs are structured by their grounds (distant, middle and fore-ground) and all are frames of the world, as seen. None are direct or like-for-like translations of the experienced world but all provide a partial and valid way of understanding it.

### **Diagrams - Sketches – Mapping**

Diagrammatic drawings involve careful and considered abstraction and reduction, comprising a type and degree of subjectivity differing from the one included in the images discussed above. Diagrammatic drawings (maps, sketches and diagrams) seek to facilitate, increase knowledge, propose (involving formulation of problems and problem solving) and communicate in a similar manner to architectural drawings (plans and elevations). Although it is difficult to demarcate a clear boundary between them, there are some differences that help us to understand how these are deployed by the architect.

The diagram tends to conceptualize, correlating with the fourth capacity of drawing established by Montaner. It presents natural and/or artificial phenomena usually through geometric elements. It is a generic tool that does not need scale and can identify existing or anticipate new organizations and relationships. The diagram has the capacity to deal with specific aspects

visually, while keeping an overview. Problems can be established, and solutions formulated through the diagramming process and conceptualizations of specific issues reached that contribute to research. Therefore, diagrams are not merely simplifications and reductions of the world. They offer multiple interpretations which are able to cope and engage with complexity. Diagrams aim for clarity and specificity by avoiding ambiguity and are able to concentrate on the specifics within the whole.<sup>73</sup>

In this research, maps are understood as a result of representing surveys where only key elements are represented. They may result from tracing over a drawing or a picture but keeping a certain synergy with the original. The diagram involves a higher degree of abstraction than the map as it aims for conceptualization, but many diagrams start as maps making it more difficult to differentiate between them. Generally, maps are presented at a scale, whereas this is not relevant to the diagram.

Conversely, the sketch is “intense”, “dense” and evokes meaning even though it is rough, usually hand-drawn and looks unfinished. It is usually the representation of a three-dimensional setting or spatial arrangement. Reduction and abstraction is inherent to the sketch but in a very different manner to the diagram and this is due to how it is made. On many occasions, the sketch has the intention of portraying an idea with just the essential lines. Thus, the sketch is also conceptual and a type of diagrammatic drawing.

Diagrams, maps and sketches are experienced through drawing but also as lived-experiences. Sketches as artefacts are experienced in two ways: the viewer recognises the sketch in the setting or building correlating both, and the viewer may be encouraged to reinterpret the sketch, the real object or vice versa. Furthermore, the sketch triggers memories or precedents in the observer’s mind, recreating the sketch when the real setting or building are missing. Diagrams, due to their appearance, seem far from the lived-experience but in many cases they are clearly reflected in the setting or building and experience.

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<sup>73</sup> Olivera Dulić & Viktorija Aladžić, ‘A Note on Graphical Representation in Architecture-Diagrams Over Sketches. Subotica, Serbia’ 4<sup>th</sup> International Conference, Titled: *Contemporary Achievements in Civil Engineering* 22, April 2016. Subotica, Serbia, pp.835-844 (p.838). This paper presents the diagram as mainly propositive while the map is the diagram for use in the analysis phase. However, I believe that the diagram is also valid, used and important for the analysis phase.

## Summary

This chapter reviewed the literature on conventions of architectural representation with regards to the limit. It reflected upon the act and artefact of drawing and as medium and technique in architecture, and the act of delineation.

The power of drawing relies on three aspects. Firstly, as Evans argues, it relies on the “distinctiveness” and “unlikeness” of the drawing in relation to its referent. It is positive and advantageous that the drawing has distance and is not simply a pure replica of the object that it represents. Secondly, drawings by nature are unfinished and as a result evocative. Each drawing type, and even each drawing, triggers different levels of “evocativeness” in relation to their reading and interpretations. Evocativeness also suggests other drawings, encouraging a multiplicity of re-presentations and re-framing, allowing the “thingness” of the referent to appear, reveal and display. The third power of drawing lies in the “drawing forth” explained by Hill, implicit in generating, developing and testing ideas related to conceptualization, deploying drawing as a medium for research and design.<sup>74</sup> This “drawing forth” includes all different types of line suggested by Ingold, yet the abstract line takes priority. The “drawing forth” is based on, and is in relation to, the line that generates and bears.

The experience of drawing involves, to different degrees, the three modes of experiencing. The drawing-experience is part of the act of dwelling and the drawing is based on the lived-experience of the referent to be drawn. Moreover, drawing involves making, encompassing an intention and experimentation, contributing to gaining experience but also displaying the experience already attained. Lastly, experience gained through perception, through the cognitive process also informs the drawing, and act of drawing. The drawing is temporal in the sense that it is influenced by the circumstances within which it was made and the time taken to make it. Furthermore, the drawing is usually based on the past and looks to the future.<sup>75</sup>

Both the line and the act of drawing are learned, and seem second nature to everyday life. Not many are competent draftspeople, but most understand and engage with drawing at different levels. For the architect, drawing is first nature whereby the hand is an extension of the mind, and drawing and mind are directly related as Pallasmaa suggests. It is the job of the architect to

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<sup>74</sup> Depending on the design process, design is research but not all design is research as not all research is design, but all types of research involve a type and degree of design. This is distinctive from architectural design.

<sup>75</sup> It is determined, and a result of the past experiences and it looks to the future as the drawing (act and artefact) aims to display and reveal the “thingness” of the referent to reach and celebrate its *presencing*.

represent, but they also have the ability to see in drawings and take the “evocative” feature to its highest level and thus make drawing the medium of an iterative process. In the architect’s practice, drawing, representation and experience are related in a complex way.

The architect sees through lines, with their inherent qualities as limit and temporality.<sup>76</sup> Lines are marks: on paper, the territory, the landscape. They appear everywhere but, per se, do not exist. Ingold talks about the geometric, organic and abstract lines which unite, separate and generate/bear. Architects deploy these types in a fluid manner. They are interested in the topological line and the line of enquiry. The line defines and delimits, but is also defined by the things it crosses, intersects or interacts with. A line can hold different roles and meanings simultaneously, and the re-presentation and re-framing allows for a multifaceted understanding.

When working with diagrams, where the degree of abstraction is high and conscious, lines are codified, enabling us to move from the world of forms to the world of ideas and concepts mentioned by Montaner. This also happens but at a different level in the other types of drawings, it is implicit in the act of drawing. Thus, based on the reflections on notation versus types of lines, three directions of acting are identified. Firstly, the line is codified allowing us to move from experience to representation with the aim of identifying the abstract lines that are generative and convey information, the line is drawn forth. Secondly, the coded line from experience, and part of a notation system (part of a given code), determines the way of seeing, and what we see, relating back to organic and geometric lines. Finally, the coded line, in representations, mediates and validates the translation from representation to experience. Thus, the line is decodified and never true to the lived experience.

The next chapter surveys and tests methods of representation, through attempts to draw boundaries in relation to the three case studies already identified in Part 1. Conclusions are then drawn about the experience and practice of representing limits in architecture and urban design. Thus, the limits of the case studies will be represented conscious of three powers of drawing, with their different experiences, types of lines and embracing iteration.

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<sup>76</sup> The line presented by Pérez-Gómez is reminiscent of Heidegger’s notion of the boundary, *peras* (as limit-ing) and also the line in Ingold; it unites, separates and generates. It has a temporality as understood by many artists in that it encapsulates movement and the forces that produced it.



## 2.2 Representing the Limit

This chapter questions whether, and how, limits are represented in conventional architectural drawing, in relation to their full experiential richness and complexity. The limits of the case studies are explored through conventional architectural drawings, testing the working definition of the experiential limit presented in Part 1. The representations,<sup>1</sup> and drawings (as verb and noun) respond to the conventions identified in the previous chapter 2.1.

The working definition of the experiential limit for architecture and urban design proposes that the limit is double, spatio-temporal and joins and is a disjunction (*limen* and *limes*) simultaneously. It is manifested in a recognisable and inhabitable strip which is asymmetrical, ambiguous and in constant fluctuation. Moreover, the limit is part of a “thing” but is also part of a larger whole; part of a continuum and topological. It is reflective and contested meaning that it is defined and defines the “thing” that it belongs to, whilst belonging to, and able to define, also being defined by, the whole and other “things” within the whole. This chapter seeks to test and explore this definition through drawing, pursuing graphic representations of the experiential limit. Drawings are mainly constituted of lines and the limit is inherent in the line. The line is an entity that unites points, yet concurrently separates what it is at each side of the line.

In this exploration, I refer to *conventional architectural drawings* meaning diagrams, sketches, parti, diagrams, plans, sections and elevations of the sort which are part of the profession and practice of the architect and urban designer,<sup>2</sup> where the line is tacit. These are collectively referred to as “drawings”. Thus, in this chapter, drawing is the medium by which the limits are explored to be represented, and these are presented alongside supportive but secondary short explanations.<sup>3</sup> The power of the drawing relies on its “distinctiveness”, “unlikeness”

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<sup>1</sup> In this chapter “representation” refers to graphic representation. The descriptions, or “written representations” are referred to in full to avoid confusion.

<sup>2</sup> The types of drawings deployed in this section are part of the practice of the architect and urban designer but it will be referred to as the architect as it is the oldest recognised profession of the two.

<sup>3</sup> The descriptions in chapter 1.2 were presented in third person and female voice. I referred to the “visitor” in the inlet *Cala Pi*, the “pedestrian” and occasionally the “resident” in the urban cases; the *L’Illa Diagonal* and *Jardins de Lina Ödena*. Therefore, in this chapter, the same convention has been followed.



Fig. 2.2.1  
Cala Pi Aerial Map



Fig. 2.2.2  
L'illa Diagonal Aerial Map (top), Jardins de Lina Òdena Aerial Map (bottom).

in relation to its referent, the “evocativeness” of the drawing and line whilst drawing and of the representation and the act of “drawing forth” that can both generate and enquire. The explorations include the modes of experiences presented in chapter 2.1 by Josep Maria Montaner and the three line-types described by Ingold with emphasis on the abstract line; able to generate and bear.

The drawing explorations are supported by photographs taken during the different visits made to the case studies between 2007 and 2017, which also happened at different times of the year. Aerial photographs, historical maps and maps provided by the city council, government and various websites have also been used as the base-layer for some of the drawings.

The presentations and drawing explorations of the limits for the three case studies have followed similar processes. Each case study starts with an introduction in relation to limits defining the case study at different scales. The representations are presented according to the journey taken through each case study, coinciding with the journey of the previous descriptions.

This chapter is structured in two sections. Section one covers the presentation of the graphic representation of the landscape case study, *Cala Pi*, and section two presents the case studies in architecture and urban design. This second section begins with *L'illa Diagonal* and is followed by the block *Cerdà: Jardins de Lina* Òdena. The most 'natural' case study (*Cala Pi*) nearest to landscape architecture, further from my discipline (architecture and urbanism) and less constrained by governance and policies is presented first because this has encouraged me to explore primarily through drawing, preventing me from deploying architectural drawing conventions in a mechanistic manner.



## 2.2.1 In Landscape

The landscape case study, *Cala Pi*, was visited four times, in September 2013, October 2013, July 2014 and finally December 2015. During the visits, photographs were taken, written notes were made in-between visits and the descriptions were completed prior to the drawing enquiry. Thus, this investigation relies on the use of location maps, aerial views at different scales, geomorphological maps, photographs taken by the author during the different site visits as well as the descriptions presented in chapter 1.2 'Experiencing the Limit' and sub-chapter 1.2.2 'In Landscape'.

The camera was used as a rudimentary instrument to record the views the eye notices and captures through the journey to and around the inlet. The camera recorded the inlet framing views, but I was specifically looking for limits as part of the journey and moments. Some of the pictures were taken in a similar manner to surveying a building, supplementing the measurements taken.

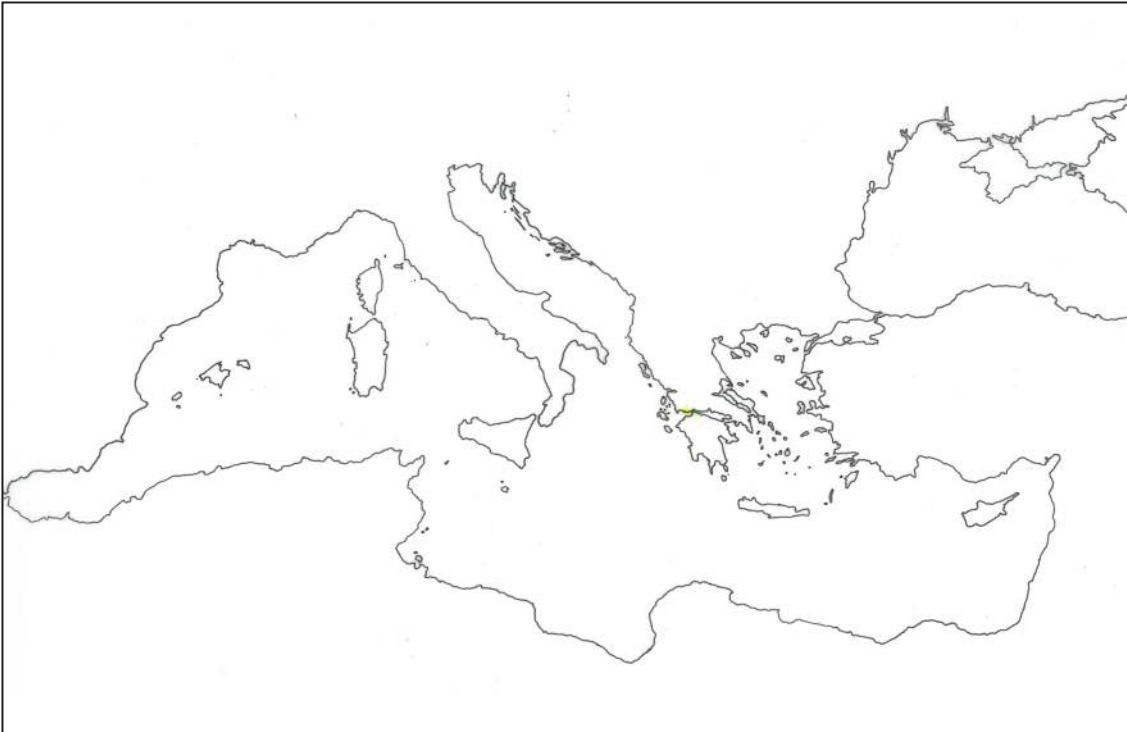
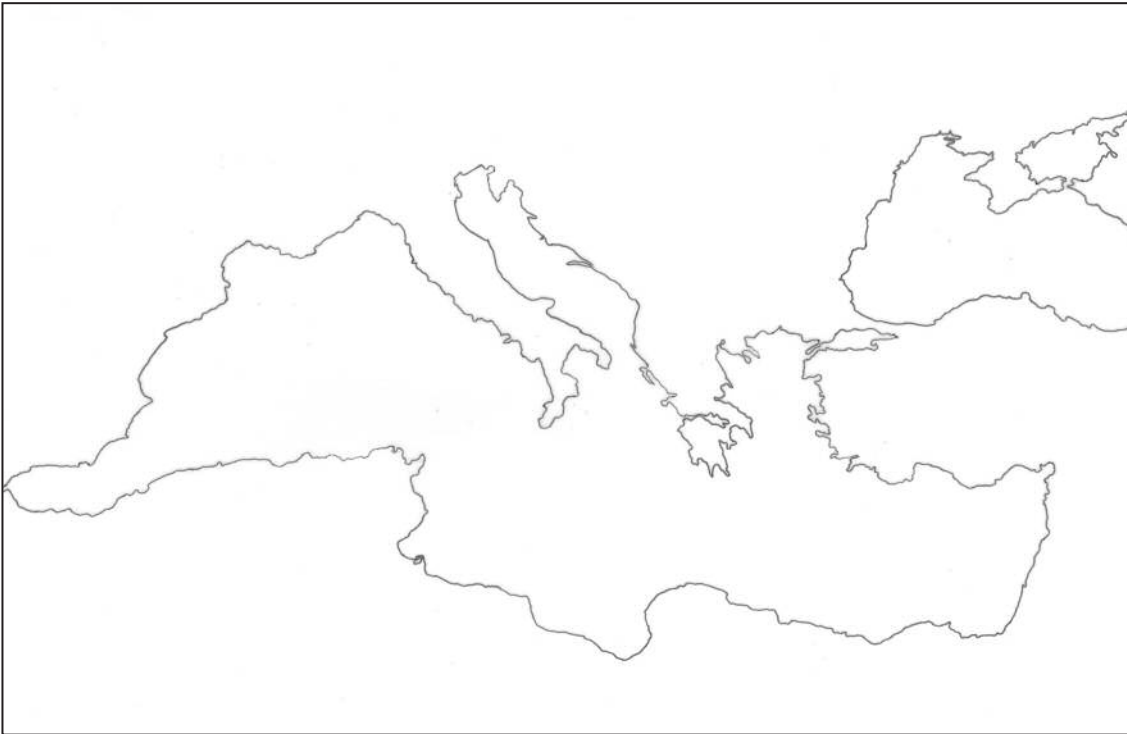
The desktop research consisted of several different stages. In phase one, pictures were organised in the form of a journey from arrival, through inhabiting, and finally to departure from the inlet. This journey included general as well as focused views, simulating the way the eye works. Firstly, the eye frames the general view but very quickly focuses on parts and then, it goes back to the whole view and back to its parts. These parts, on some occasions, become "moments" that help to comprehend and in the future to recognise the place. Some of the moments are specific to the location where two elements meet framing the possible limits. Phase two aimed to represent the experienced limit, involving tracing limits over selected views. This took several attempts at tracing different elements, in different manners, with different layers and then finally juxtaposing them. With the reiterative process of drawing, lines were codified, de-codified and encoded, disclosing meaning. During this phase, I positioned the inlet in the wider context of the island and as part of the Mediterranean sea, led by the enquiry of the line of maps that cover a wide range of scales where the line takes on different meanings.

The outcome of this enquiry is a series of diagrams familiar to the practice of the architect even though many of the plans and sections are based on photographs and are not measured orthographic drawings. The limits are presented in a sequential manner, replicating the journey taken when visiting the inlet and deployed in the descriptions. Nonetheless, in this case it starts

with the Mediterranean sea and ends up reaching the seawater. The representations of the limits do not cover all the limits but rather selected ones and do not correlate fully with the ones presented in the descriptions in section 1.2.2. These representations are coupled with reflections that intersect with the definition of the limit contributing to the conceptualization and validation of the definition of the limit and its attributes. The drawings are not precious and do not seek beauty and perfection, but more importantly seek to display, reveal, discover and dispose.

*Fig. 2.2.3*

Line defining the Mediterranean sea.



*Fig. 2.2.4*

Line defining the Mediterranean sea including lines in the "middle".



## Mallorca Inlet: *Cala Pi*

### Enclave

#### Enclave i: European Map From the Coastal Line

Within cartography, it is common practice to draw the line that defines the distinction between land and sea. Value is applied to land, a practice inherited from our ancestors. We live on land, we buy and sell it, we price it and legislate for it. But what happens when we draw the line that defines the land but now, to my eyes, also defines the sea? Suddenly, the line is perceived differently, generating and bearing distinct meanings. The graphic presents this latter view unveiling a different set of relationships in the same way as when we reverse the figure-ground in urban studies. The sea is contained. Simultaneously, different countries re-make the line<sup>4</sup> and these are united through the line and interrelated through the sea.

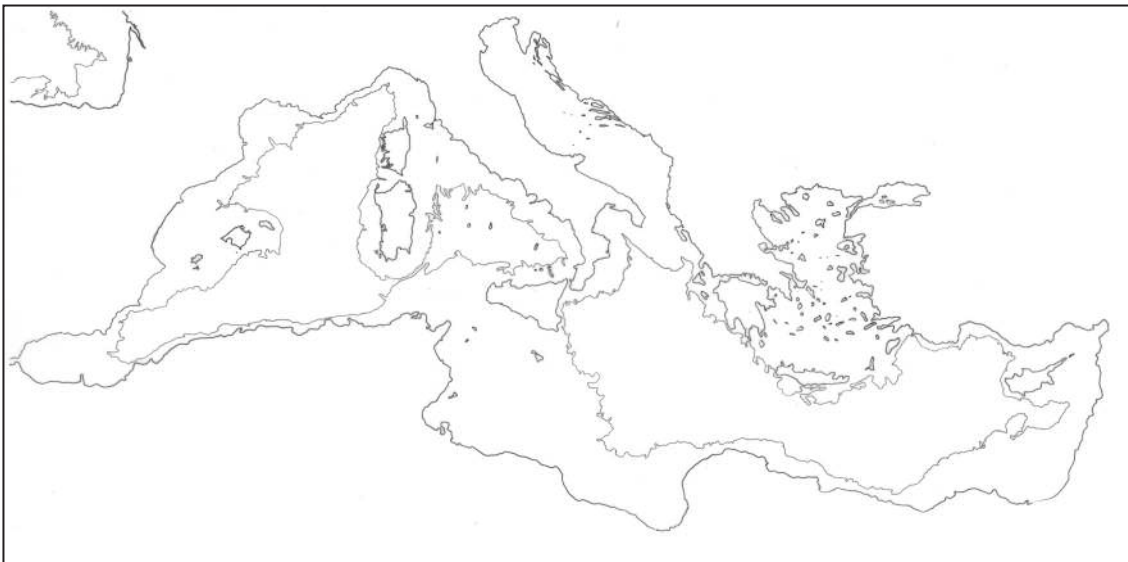
What happens if the drawing only presents the contour line of the Mediterranean leaving out the islands? Does “the line” acquire or provide different meaning and establish different relationships? Is this the case, when the line acts as limit and where it “begins its presencing”? At present, this line has meanings and unifies the different countries bordering the Mediterranean Sea. The reframing has changed the generative line of this area. For many, this line means hope while they fear the middle. Millions of people transgress the southern line leaving behind their country, culture and people for a better life to the north. This is put on hold the moment they transgress the southern line and reappears when they transgress the northern line.

The place has been reframed from the line. Nonetheless, it does not exist as a line-per se. The sea is tidal, meaning that the line where the water meets the land is in a continuous cycle changing around the clock. Moreover, while tracing the line on a map I question if this line is accurate “enough”. Next I work on a larger map where I can draw the line with more precision or perhaps just detail. But the same question re-appears as the line is drawn and re-drawn with a slightly different shape and position on paper; does it matter? The line is a representation differing from how it is experienced in the world. It is similar to the horizon; it is there. It structures the view, but every time I move this moves with me and always in relation to my eyes

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<sup>4</sup> The borders of countries are socio-politics constructs, which are always contested and change over long periods of time. In this case the border is natural but affected by socio-political actions and decisions.

*Fig. 2.2.5*  
Continental plates defining territories and providing a different view of belonging.



*Fig. 2.2.6*  
Island of Mallorca, part of the Cordillera Sub-Bética.  
The red dots show the locations of the case studies: to the north, Barcelona is indicated, highlighting the urban case study locations and to the south, the landscape case study is indicated.

and their position. With the diagram I fix the coastline. Rather, the representation of the coastal line is presented as something fixed, thus differing from the thing itself.

### **Enclave ii: Spanish Geomorphology - Mallorca Belonging to the “Cordillera Sub-Bética”**

This provides a different understanding of the territory to the one presented in the previous figure. The islands of Mallorca, Ibiza and Formentera are part of the Sub-Bético mountain range of the South of Spain while Menorca is part of the transalpine Coterio-Catalana. Thus, Mallorca is not any longer an island of the Mediterranean sea but part of the Sub-Bético region south of Spain. The land between the island and the South of Spain is submerged with the water creating an in-between.

Thus, the line acquires a different meaning and role when this is considered at a different scale and view point.

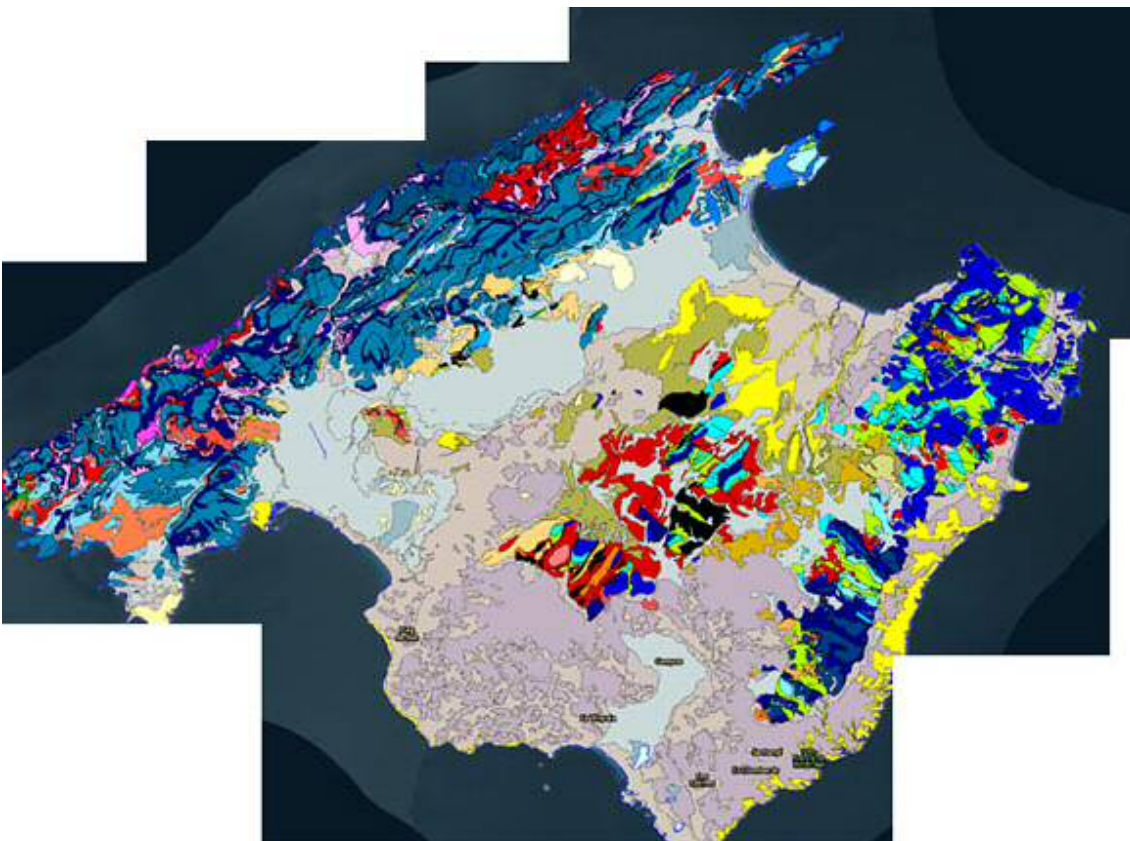


Fig. 2.2.7  
Geomorphology of the island defined by blobs and lines.



**Enclave iii: Mallorca Surfaces - Geomorphology**

The geomorphological map of the island is defined by “blobs” mapping the materials that compose the island and are exposed at the surface. It reveals part of the substrate that supports the flora and fauna as main contributors defining the unique atmosphere and character.

Although we experience the atmospheres and characters we rarely see this representation. By looking closely one can read lines that represent accidents helping with locating and correlating.

Each blob is limited with a black line marking its temporary boundary where two materials meet, or one ends and another starts. It is temporary, as Aristotle advocated, everything is constantly changing but in this case, it follows a timeline of a different scale to ours.

This representation is composed of eight squares, each containing a part and the overlap between them. The puzzle was assembled from the borders of the island defined by the coastal line. Further adjustments were achieved by aligning lines limiting the blobs of colour. Thus, the image is composed from the limit and in this case the limit is formalised with a line that contains a colour codifying a material and its properties



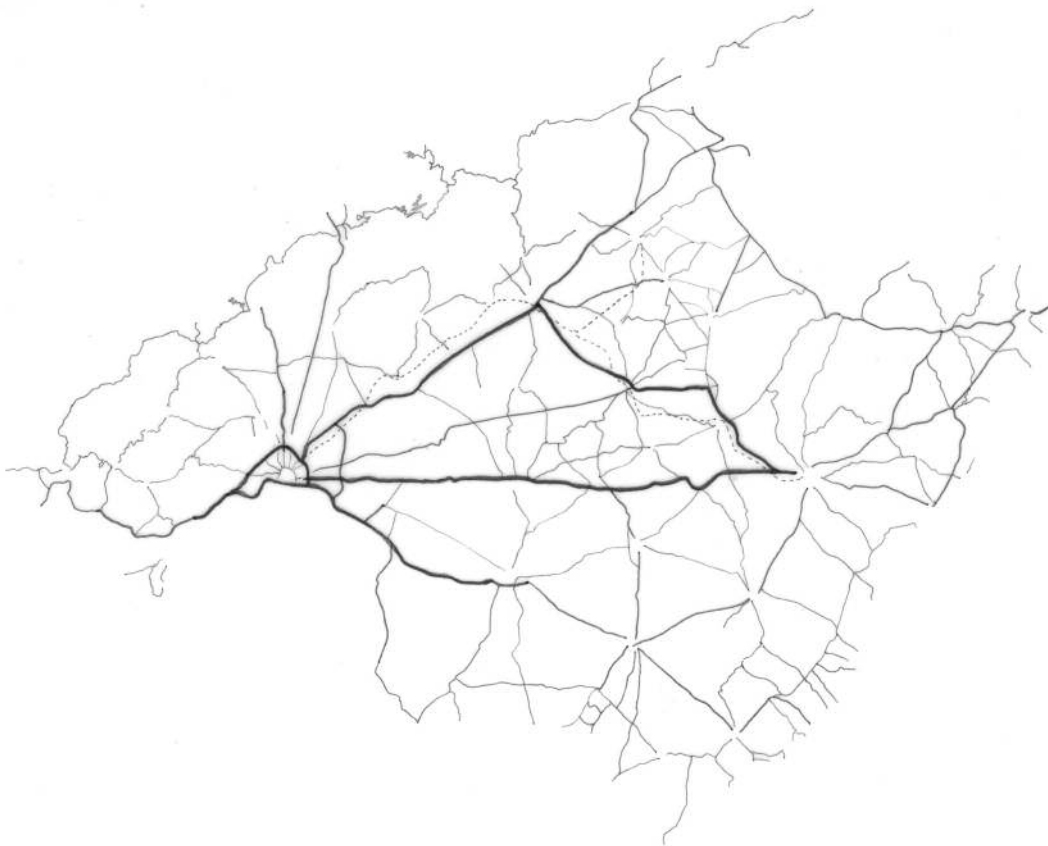


*Fig. 2.2.8*  
Nodal points representing agglomerations of people where wealth, culture and socio-economic activity define them.



**Enclave iv: Mallorca Intensity POINTS**

The island is dotted throughout its extension with settlements varying in size and intensity. This map represents just the nodal points with high intensity in terms of locations of social, cultural and/or economic activity. One of the nodal points, due to its level of intensity and extension compromises the whole territory manifested with the connections presented on the following page. This leading nodal point is complemented by two large nodal points triangulating the territory. These major nodal points are followed by smaller nodal points each with a different capacity to influence the dynamics of the territory. Each of these nodal points is limited, containing urban land and they generate and sustain the lines that linking them, in this case the roads.



*Fig. 2.2.9*  
Marks, lines connecting the nodal points providing structure to the territory.



**Enclave v: Mallorca Linking LINES, Linking the Nodes**

The territory is marked by roads that translate into lines on paper. These are interrelated to the nodal points and these, in reality, are compromised by the topography but have grown from the necessity for physical connection between nodal points overcoming their separateness and boundless. As a result, these lines, as limits, link points in the territory by tensing, permitting and encouraging relationships. They also mark the territory, separating the areas they cross.



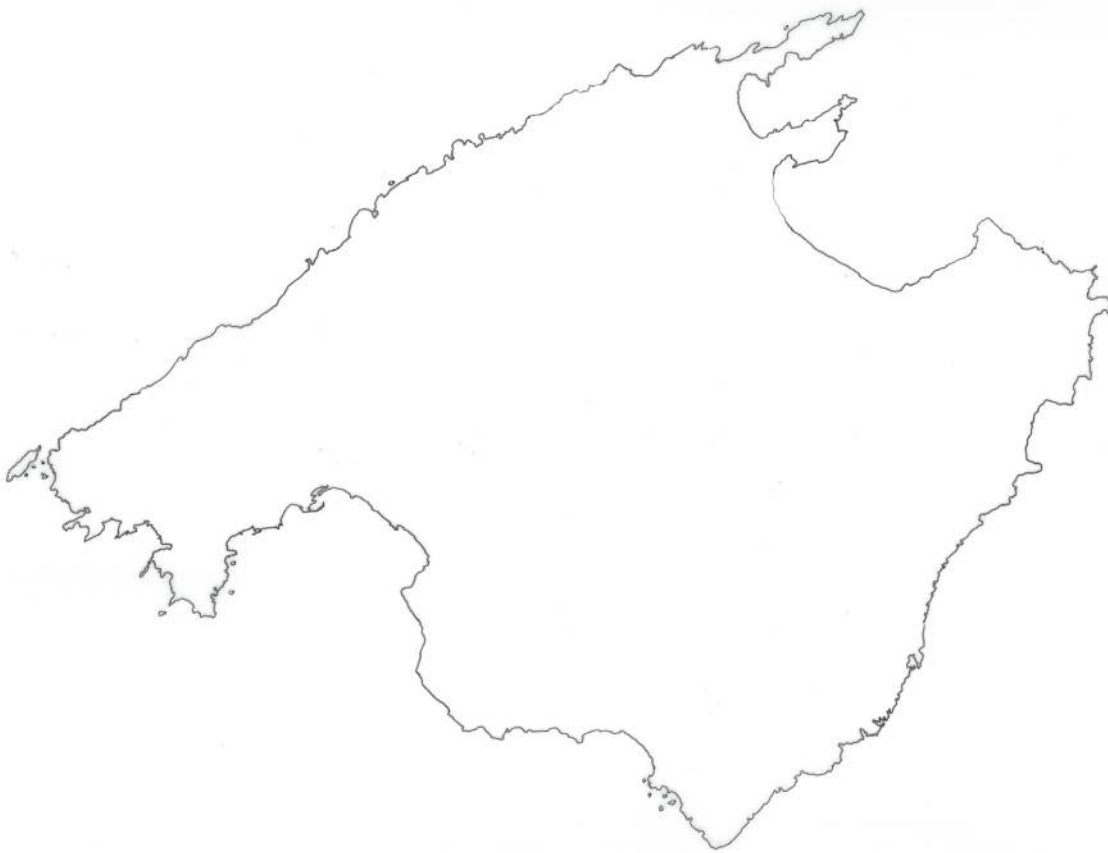
*Fig. 2.2.10*  
Marks made by temporary watercourses running according to the topography.



**Enclave vi: Mallorca MARKS - LINES**

The rainwater marks territory with *torrents*. Water takes its path. A path that is defined and also defines the topography. With the perseverance of water and over time the path becomes a stream gently ploughing the topography and making its place. Thus, these marks in the territory work in a similar manner to the marks a pencil makes on paper. Here, the lines disclose the marking of the limit and the interdependence between the act of marking with limiting, inferring meaning to “limit”. The act of drawing reveals the interrelation of these two words.

The lines on the map representing the *torrents* correlate with the middle line of the riverbed of a water course with margins at each side. But, do the lines represent the *torrent* as a geomorphological element as a mark on the territory? Clearly, the line does not represent the moving water. Instead, it represents where the water runs, revealing the topography and providing geomorphological information. At this scale, the water course is reduced to the mark of a line on the territory and our imagination adds other layers of information based on our experience of the world.



*Fig. 2.2.11*  
On the line, marking the perimeter defining the land that defines the Island.



**Enclave vii: Mallorca ON THE LINE**

Mallorca is defined by this intriguing and complex line determining the limit between the water/ sea and land. This is a tidal line that continuously and gracefully moves up and down with some highs and lows through the year. However, at this scale these changes are not noticeable. Thus, the represented line exists but to some extent is an illusion.

The enclosing line is recognised by all the locals. We<sup>5</sup> can all draw this line; some better, some worse. This line defines the island, its land, its contours and, to a certain extent, its identity. It defines the available land, making us-the locals- aware of its definiteness and limitedness. It is the ultimate limit within which human activity is constrained.

This particular representation shows a limit that is an entity as it is recognised and asymmetrical. Nonetheless, it is a line that cannot be inhabited, it separates but not joins. It represents as a certain opposite to ambiguous, fixed as opposed to the reflective and contested, fluctuating and topological attributes of the definition of the limit of this research.

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<sup>5</sup> I deploy the "we" as I grew up on the island and I feel identified and defined by this limit.





**Enclave viii: Mallorca LOCATING**

Many locals, while drawing this line or following it with a finger, will refer to locations on the line which are part of their memories due to direct or indirect experiences. Furthermore, most of the names are accompanied by the geological element they name, part of a family similar to our surnames. Thus, we have:

<i>Cap</i>		Cape
<i>Punta</i>		Headland
<i>Platja</i>		Beach
<i>Cala</i>		Inlet
<i>Badia</i>		Bay
<i>Port</i>		Port

A codified invisible line is thus presented. Our eyes draw the contour of the island outline, mentally joining the beginning of each name. However, for many locals the names are associated to personal memories, bringing the line to life.



Fig. 2.2.13  
Cala Pi.

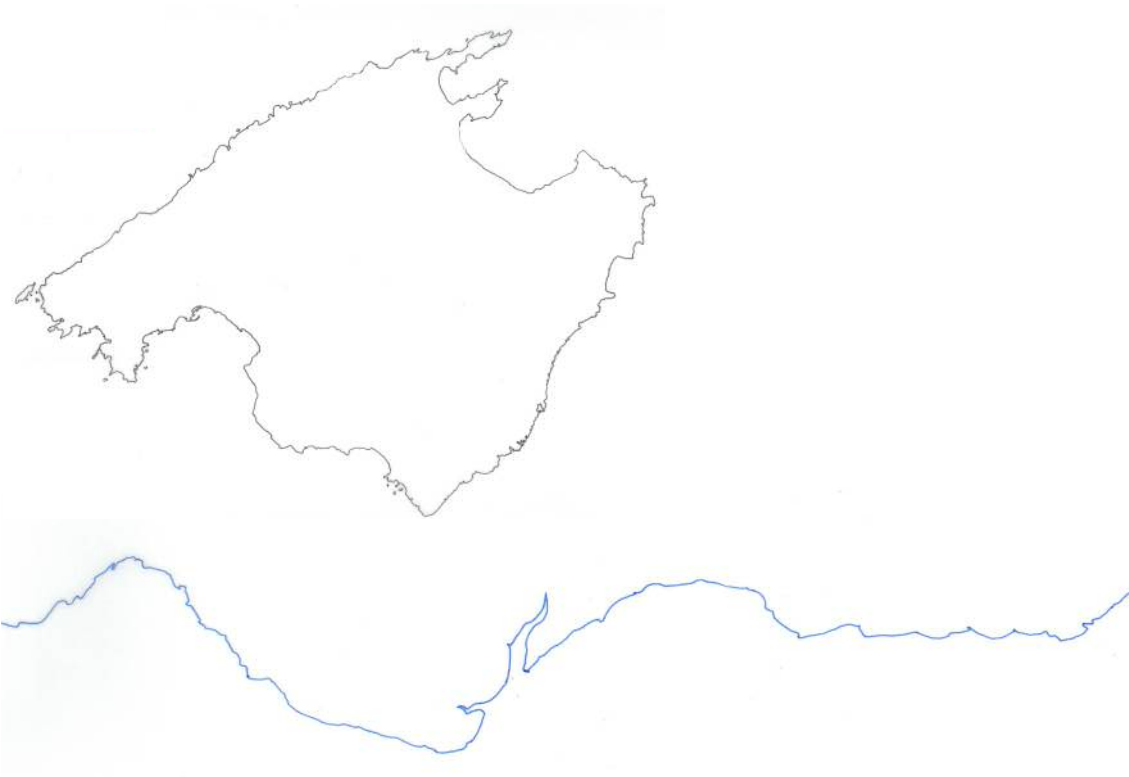


Fig. 2.2.14  
Defined line that is re-shaped over and over again as you zoom in.



**Enclave PLACEMENT: LOCATING the Inlet.**

Every time we zoom in, the line is not just re-drawn but also re-shaped. This case study is located ON the line. It is placed in an area where the line it witness to an accident, a peculiarity. The line is part of the south coast of the island and the accident defines an east and west side providing direction and particular orientation in relation to the sun.

As a result of a zoom-in, the perimeter line of the coast is becoming multifaceted as there maybe something other than just a line containing land. The line desires to be followed by the finger displaying the mobility of its lineality and taking presence.

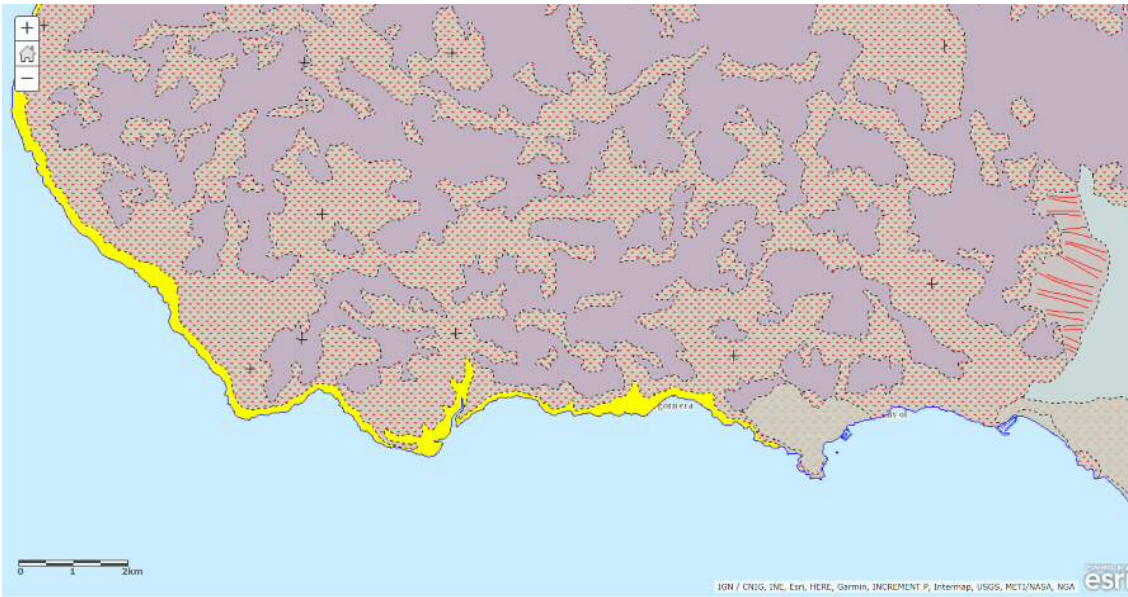


Fig. 2.2.15  
Blobs in the Landscape.

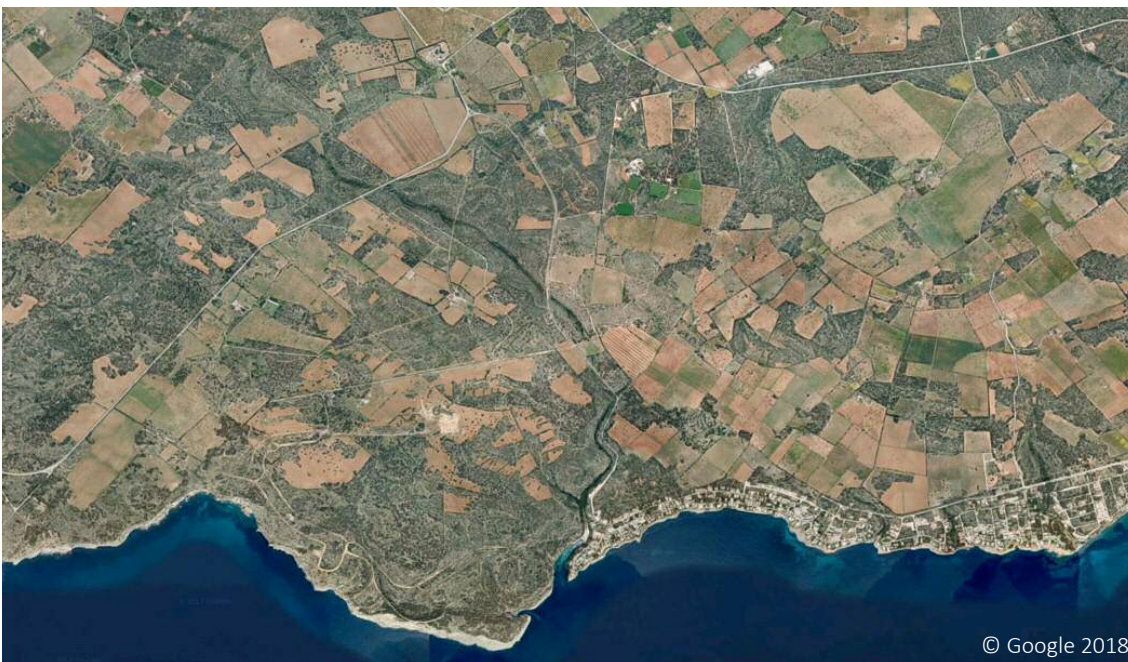


Fig. 2.2.16  
Blobs in the Landscape.

## Placement

### **Placement – Located i: Aerial View Versus Geomorphological Map**

The two images encapsulate different representations of the same thing. The aerial view represents the territory as we see it from the birds-eye view. This contrasts with the geomorphological representation describing the composition of the terrain and it works at a larger scale.

The coastal line is a recognisable element that correlates both images and we compare them from this correlation, the ultimate limit and this locates us.



Fig. 2.2.17  
Lines defining blobs on the territory. Blobs identified by colour and texture.

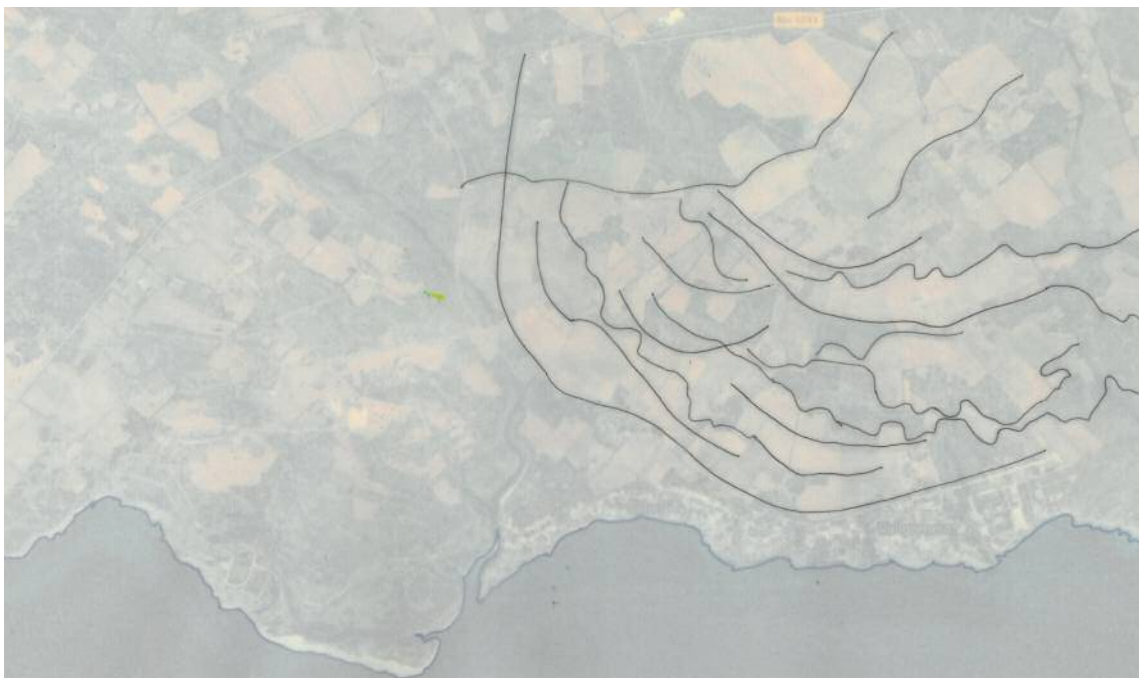


### Placement – Located ii: Blobs in the Territory

This map reads as an amalgamation of blobs. These blobs are defined parcels where specific vegetation grows. We can distinguish two types of parcels; parcels where indigenous vegetation grows at its own pace and with minimum human intervention, as opposed to others which grow according to an imposed schedule and pace where productivity leads the management diary.

The blobs only includes two-line types, which is a reduction based on different and accumulative meanings. Discontinuous lines represent single limits representing usually a change in the type of vegetation. Continuous lines represent double or triple limits where a change of vegetation correlates with a path and/or a change of property. Hence, a parcel can be defined by one or more types of lines representing different limits, from which meaning and relations or separations are established.

The coastal line, at this scale, may be understood as a double line; one defining the junction between the rural or urban land and coastal land and the second one between the coastal land and water. These two lines are juxtaposed in some areas and in others show as a variable but inhabitable strip.



*Fig. 2.2.18*  
Lines defining blobs on the territory. Blobs identified by colour and texture.





*Fig. 2.2.19*  
Marks on the territory providing access and connection.



**Placement – Located iii: Marks, on the Territory**

The map shows the delineation of roads and paths. These provide access to the parcels of land, which are imposed artificial lines that limit the territory. Thus, this map includes only marks of this type and a hierarchy in relation to the intensity of the mark, in this case width, that correlates with actual capacity and flows.

The map includes single lines codified by their thickness but these are interpreted as double lines that allow inhabitation and permit flows through them, although they create a discontinuity in the territory.



*Fig. 2.2.20*  
Marks defining identity.



**Placement – Located iv: Marks, on the Territory**

The marks on the territory also include property lines which are, in most cases, straight lines and also streets in the urban areas. To the west there is the memory of a proto-urban area. Streets were laid out but probably the coast was protected and the development did not go ahead, leaving marks that over time are fading and blending into the territory. These resemble the marks, lines, that appear on our face as we grow old.

Most of the lines that characterise our faces through time are a reflection of our individual expressions. Others lines remind us of an incident- sometimes, a traumatic one- or just a particular situation, but all are experiences that make us who we are. In time, these incidents are the things we remember, marking and writing the story of our lives. In a similar way, the marks of the territory, as limits that link and separate, help us to recognise and interpret the territory.



*Fig. 2.2.21*  
Marks defining identity and atmosphere.



### **Placement – Located v: Marks, on the Territory**

The juxtaposition of the maps shows different line types. The line of the block is mainly codified by what it encapsulates and in doing so it defines the outside. The lines delineating the marks on the territory as roads, streets, streams are complex inhabitable lines that unite and divide and contain movement.

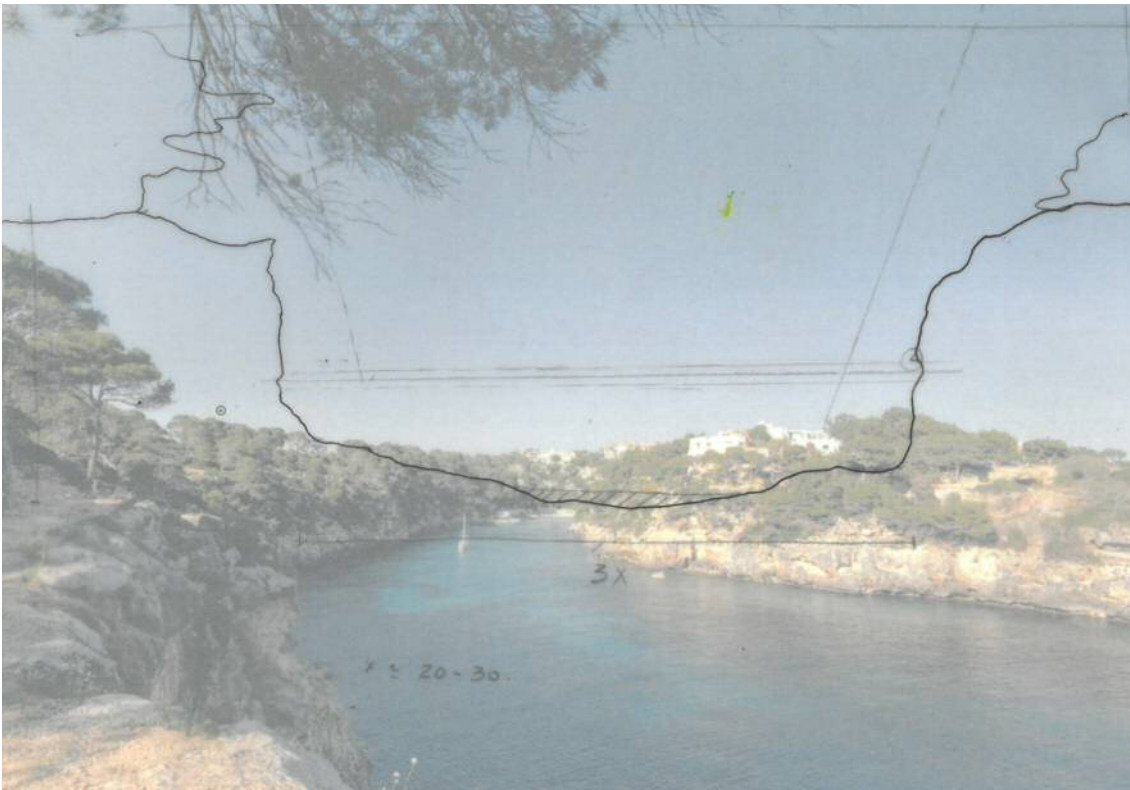


Fig. 2.2.22  
Discontinuity in the line, section.



Fig. 2.2.23  
Discontinuity in the line, plan.



## Aperture

### **Discontinuity on the Coastal-Line**

The coastline suffered a discontinuity resulting in water encroaching into the land and forming the inlet. The encroachment more or less correlates with the north-south cardinal points, consequently creating an east and west façade (perpendicular to the encroachment) providing orientation and direction. These two façades are exposed to slightly different conditions. The western façade is directly exposed to sea waves and receives sun in the morning due to variations in orientation. On the contrary, the east façade is more protected from the sea, less exposed to waves and wind and receives sun in the afternoon. Houses are built along the coast on the east façade, this acting as a limit to development.

The two façades appear from the aperture as part of one thing. The coastline folds to create the aperture defining as well as containing an in-between. The essence of the façades is to contain/hold, thus they work as a pair. As Vesely<sup>6</sup> indicates, up and down become relative and the only absolute is the position of the human body and in this case the aperture contributes to situate the human body which has the capacity to constitute a coherent space.

The delineation of the rock in section is both generative and bearing. The plan discloses that the rock formation receives the sea. The sea displays as an in-between inhabiting the perfect gap. The seawater forms a margin at each side at its encounter with the rock.

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<sup>6</sup> Dalibor Vesely, *Architecture in the Age of Divided Representation. The Question of Creativity in the Shadow of Production* (London, England: Cambridge, Mass: The MIT Press, 2004), pp.47-48.





Fig. 2.2.24  
View from the West side looking towards the tower at the Eastern entrance to the *Cala*.

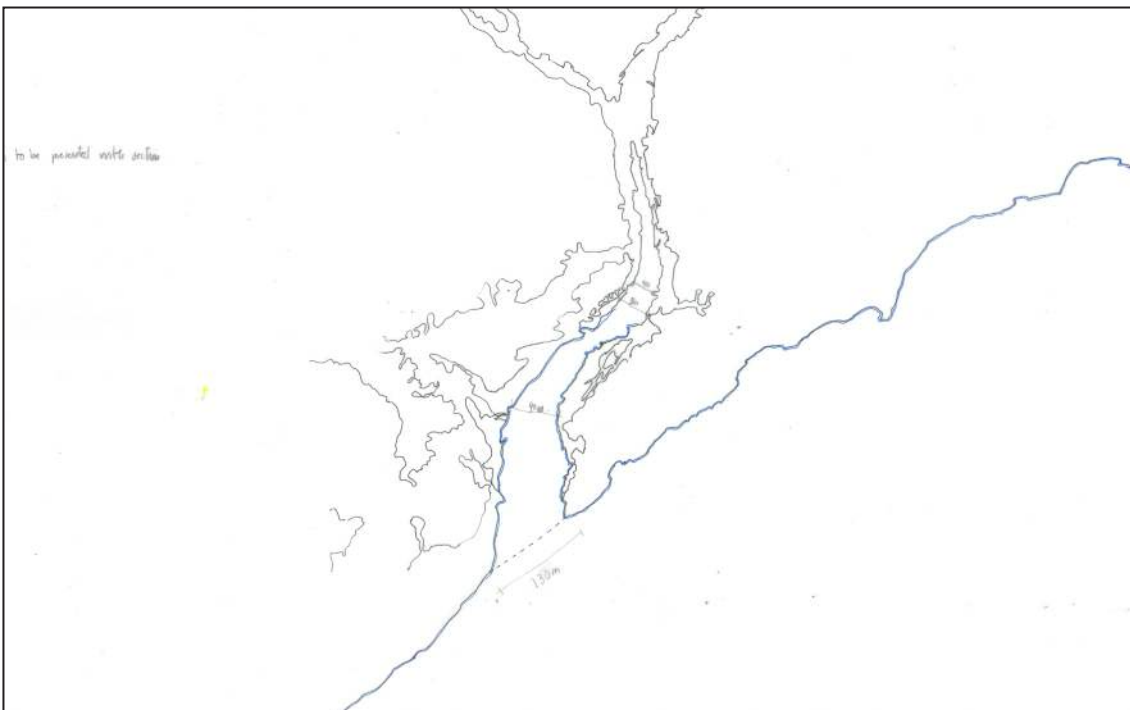


Fig. 2.2.25  
Our eyes draw the connecting line between the East and West facades in order to overcome the discontinuity.



**Aperture i: Plan**

The coast-line is interrupted, though our eyes overcome it by drawing in our mind the missing part of the coastal continuous line. This continuous line defines the inland from the sea; it creates an illusionary boundary. The aperture is of about 130 meters and this narrows down reaching 50 to 40 metres in the inner sandy area.

The blue and black lines coincide. The blue line represents the edge of the water and the black represents the contours of the rock. The lines delineate the place where they come into contact. The rock contains and the water invades or embraces the rock, penetrating to the deepest point it can. This double blue-black line delineates this meeting point; the double limit between both elements. This water creates tension, contesting the rock and the rock reflects it back, defining the limit.

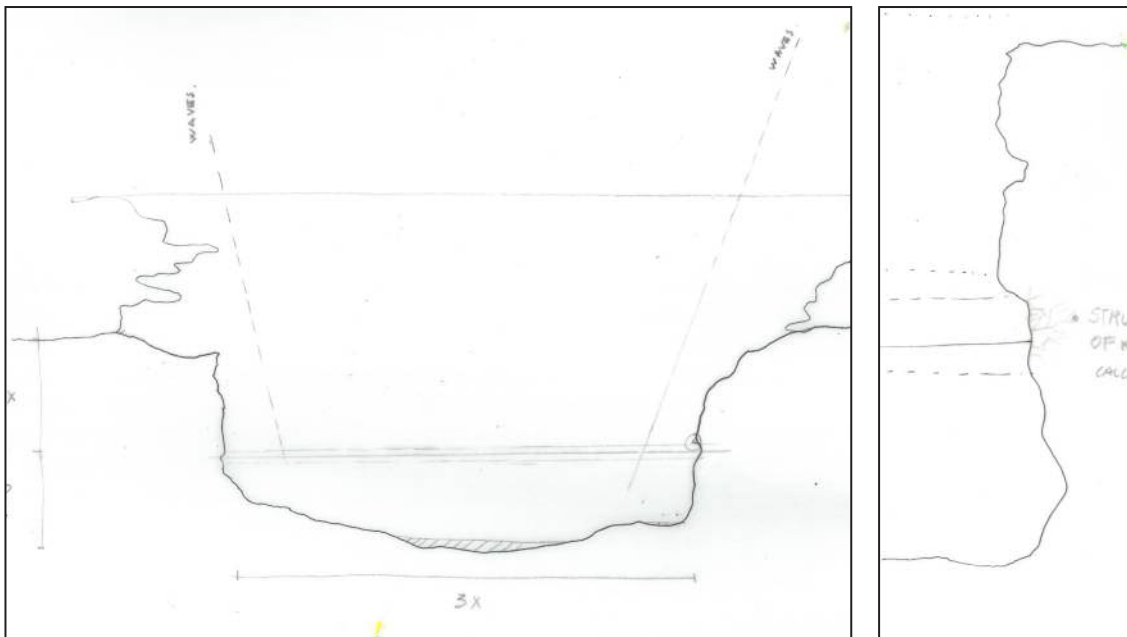


Fig. 2.2.26

Section showing the erosion of the rock by the persistence movement of the water and influence of the wind. The sea level fluctuates due to the tides.

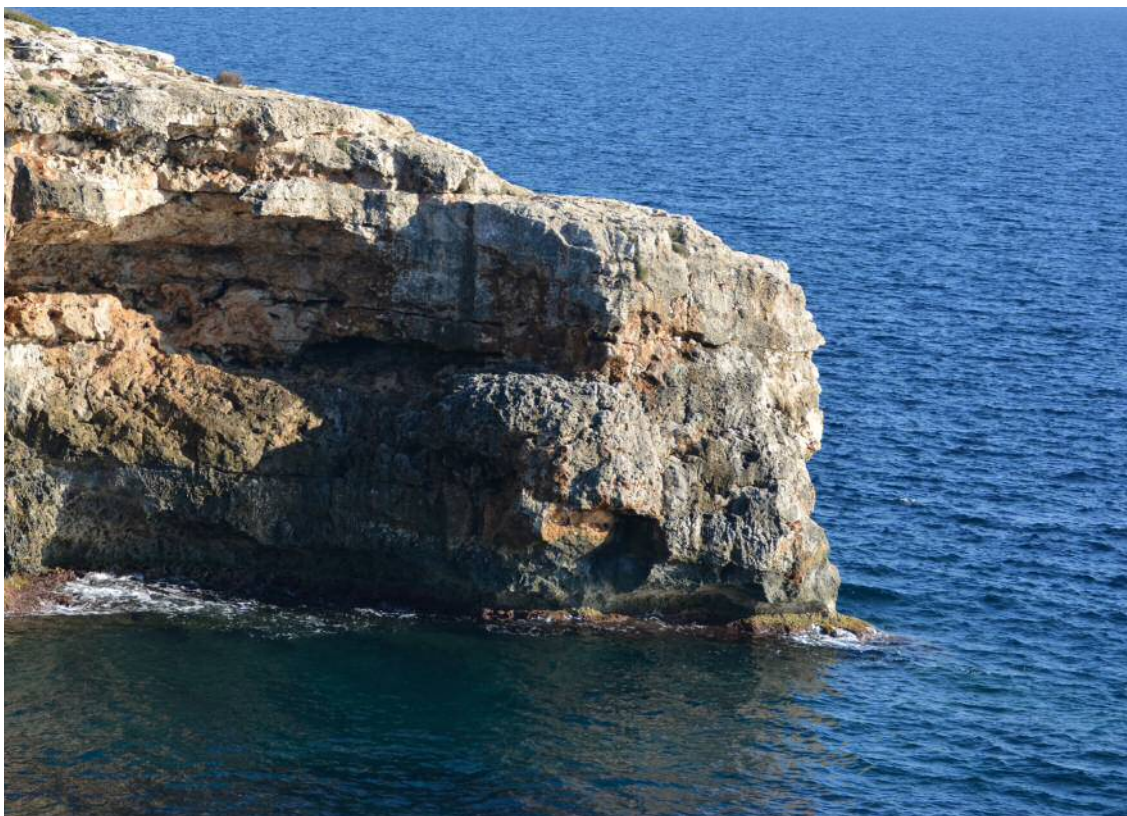


Fig. 2.2.27

Prominent rock showing a different profile as a result of forces of water and wind working differently.

### Aperture ii: Section

The rock sustains. It folds, creating an irregular surface with a micro-topography becoming the container for air, water, sand or soil. The parts in contact with air receive the sun, wind, rain (weather) creating tensions ending up by eroding-modifying- the support as these elements act repeatedly over time. The level of erosion differs between areas depending on the specific composition and crystallization of the rock. The rock areas covered with soil host vegetation and this protects the rock from eroding due to exposure to the fluctuation of temperature and direct contact with the wind (external agents). The rock area containing water, in section, reads as a huge vessel but the contained element is in constant movement and acts on the rock. The water levels are registered on the rock.

The line delineating the profile of the section is a continuous variable line that bends, folds and adapts in order to contain. The façades are defined by this line discovering their shared nature. The seawater reads as the added element that is contained by the rock. As a result, the water submerges part of the rock where a great amount of surface is shared between elements. The water is in constant and rhythmic movement: up and down, and visually revealed at the meeting between rock, air, sky and water. As a result, a strip of rock records and visually reveals this encounter and movement. The rock contains the water and this, in return, slowly erodes the rock revealing a double limit,<sup>7</sup> which is an asymmetrical, reflective and contested limit, that continuously fluctuates. Thus, the line delineating the rock in section is generative and bearing and it is part of a strip.

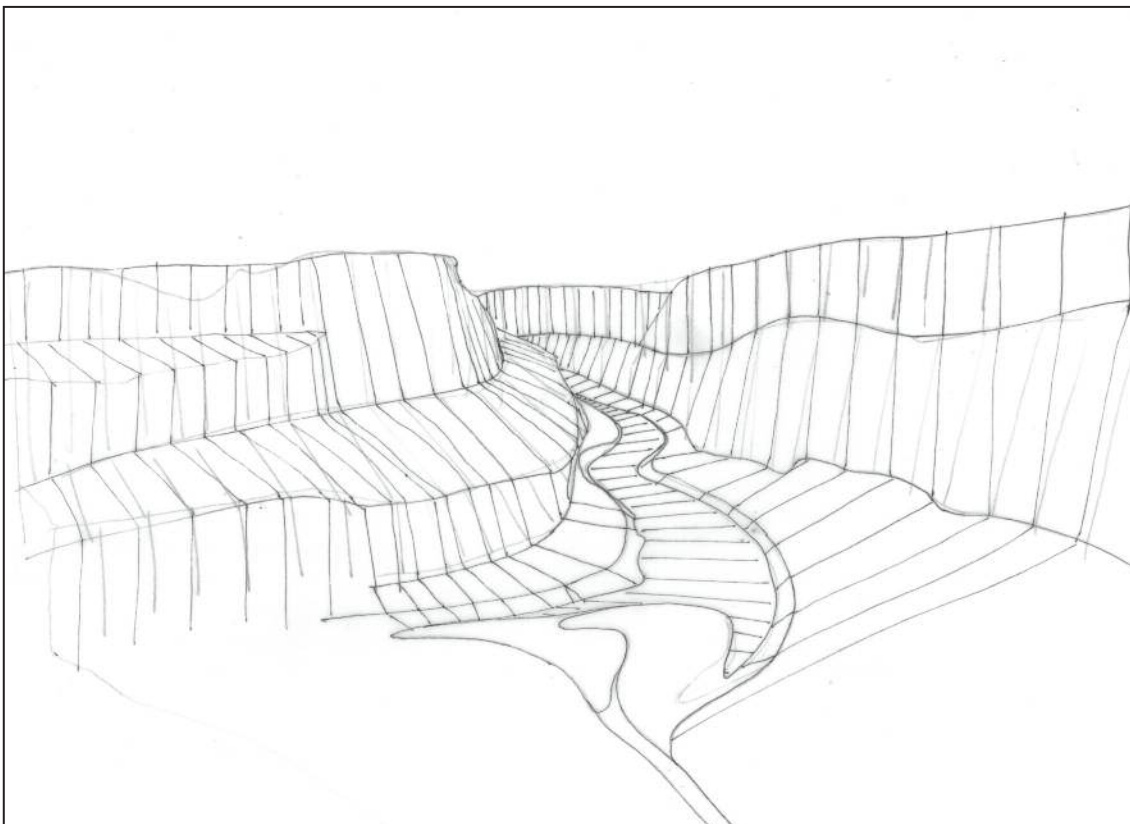
The line defining the position of the water is, once more, an illusion. The camera shot freezes a moment. After the picture is taken the water has already moved, reaching a higher or lower position, and this happens over and over, returning to the position passing the same points again and again. The section records a middle line and an upper and lower line correlating with the higher and lower level of the waves on that day and a different lower and higher level identified in relation to the tide. The graphic drawing presents the middle line reached between tides and this may be considered the average and “representative” line, plus two discontinuous lines are drawn correlating with the average high and low tide. Independently to the lines drawn representing the sea levels, the water penetrates into the rock transgressing the visual limit of the rock. This is not visible but the effect is manifested with the change of colour and also the profile of the rock.

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<sup>7</sup> It is a double limit as the rock is a limit to the seawater containing and then, the seawater also generates its own limit; its own rules of engagement.



*Fig. 2.2.28*  
View of the inlet where sky, rock, vegetation and water have presence.



*Fig. 2.2.29*  
Representing the enclosure; containment.

## Ingress

### **Ingress i: Facing Inland**

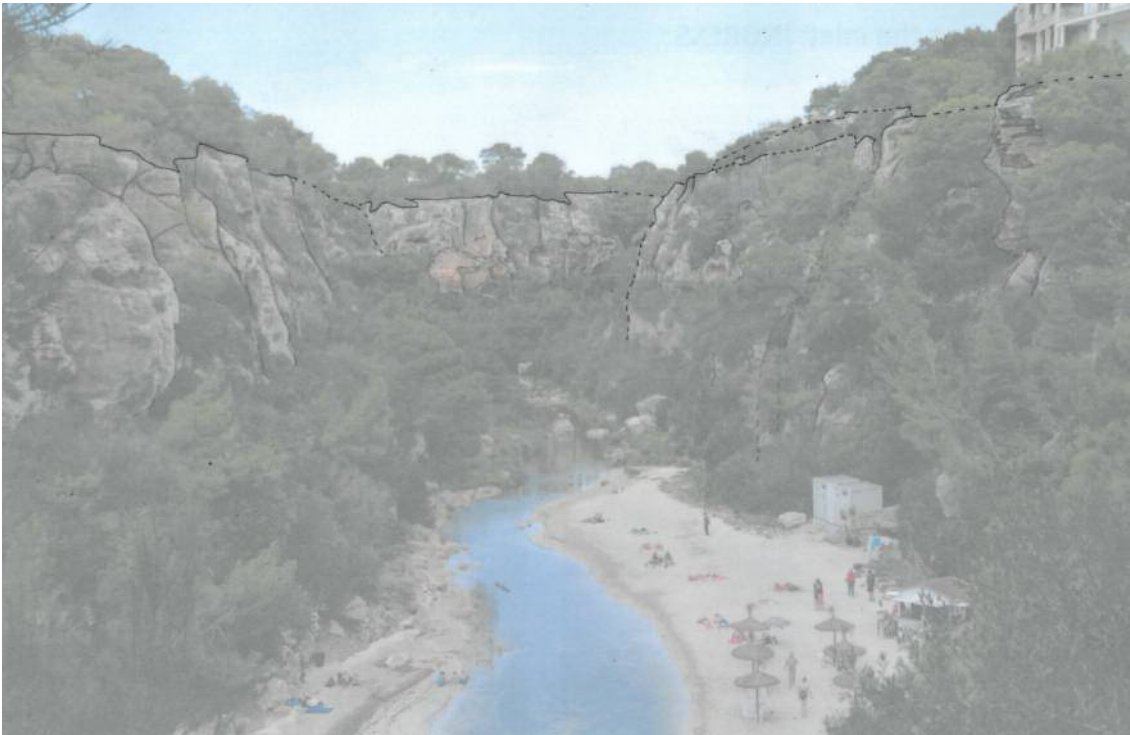
The image shows the principal elements that compose this place: sky, air, rock, sand, and water. These sustain the place and their specific combination enables the rest to evolve. These host the flora and fauna that can be surveyed at different scales. The dynamics between the four above mentioned elements make this place unique. Its uniqueness is characterised by the interrelationship between them and these are shown at the boundary-limit, at the surface. Interrelationships and tensions reach a temporary balance.

The map presents the enclosure of the inlet. It reads as a vase in which I am, in which I locate myself within the four walls: blue seamless sky opposing the water and sand and these are contrasted by the two rough and textured façades. The aesthetics of the drawing remind us of a cloth that adapts.

This drawing is about surface instead of line, evoking the skins of our bodies as limit and the nominal text *The Eyes of the Skin* by Juhani Pallasmaa.<sup>8</sup> This also reminds me of the wireframe drawings from early CAD systems that generated a three dimensional surface from lines.

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<sup>8</sup> Juhani Pallasmaa, *The Eyes of the Skin. Architecture and the Senses* (Chichester, West Sussex: John Wiley and Sons Ltd, 2005).



*Fig. 2.2.30*  
The line defining the upper part of the enclosure.

**Ingress ii: Facing Inland -Act of the Rock**

Drawing reveals a more or less horizontal complex line where the rock and the containment ends. The same line presents the sky. This line delineating the enclosure provides a sense of protection for the visitor and positions them within the landscape. This relocates itself as the visitor moves around (as the horizon). The secondary, more or less vertical lines, in a loose way, anchor and tie the vegetation together. The primary horizontal line acts as a rim, limit. It is reflective as it defines the enclosure of the inlet. It is contested as the plants, sun and rain act on it, modifying it. It joins and "gathers"<sup>9</sup> what it is below and it separates, delineating a difference from the sky. Other lines are dependent or grow from this one, due to being able to generate and bear.

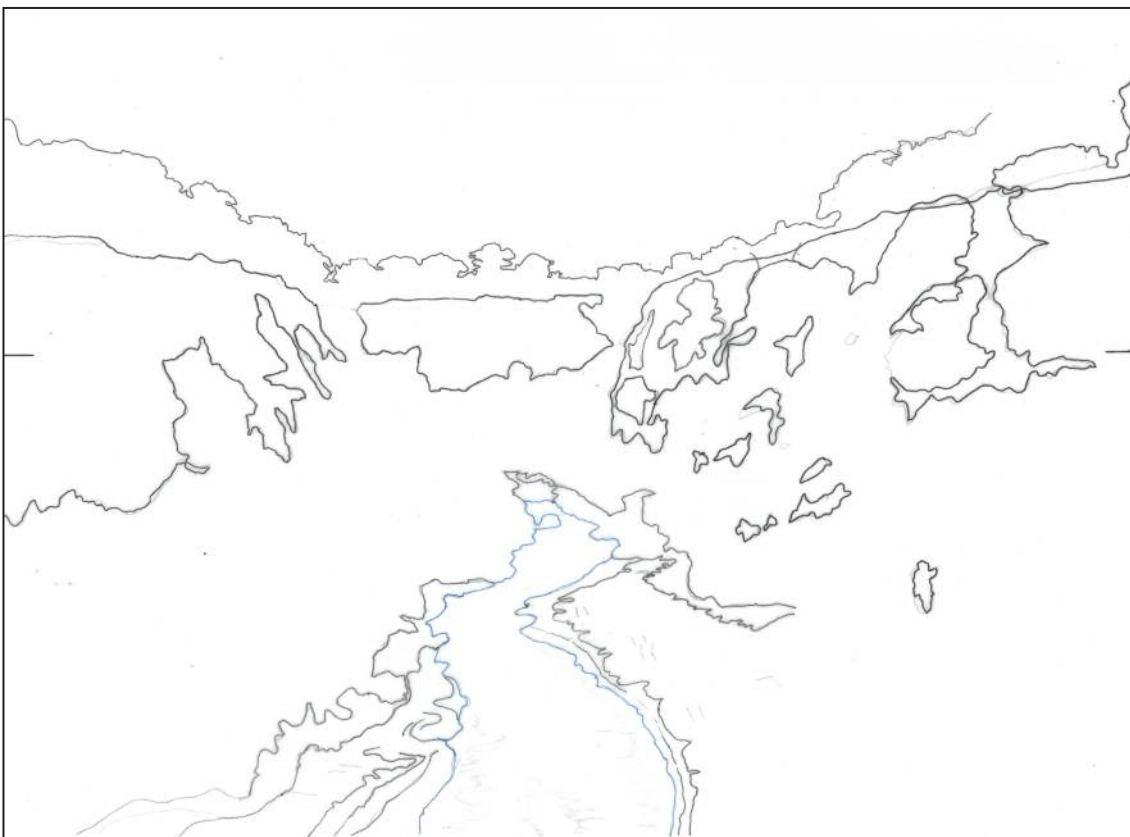
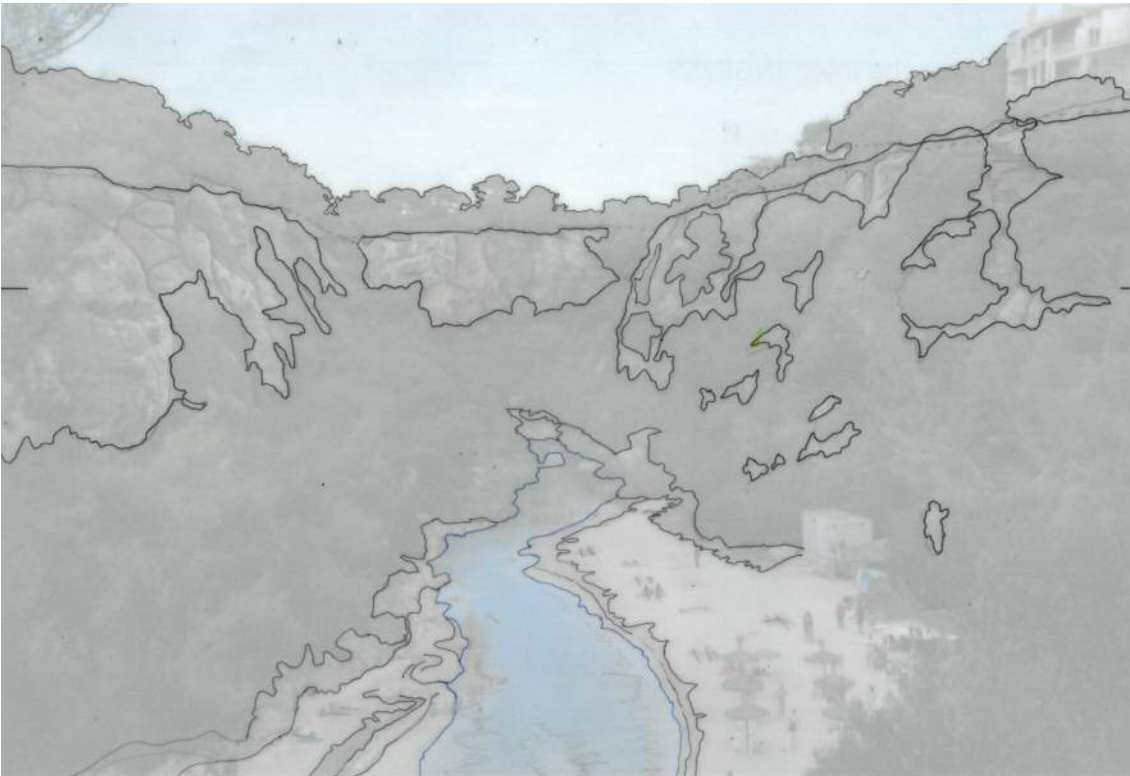
The drawing is composed of three different types of lines:

1. Continuous line defining the visual boundary of the rock acting as rim;
2. Discontinuous line bridging the gaps within the boundary that acts as a rim;
3. Continuous lighter line: vertical-ish lines defining the visual boundaries of the rock.

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<sup>9</sup> It gathers in a similar way to the bridge in Martin Heidegger, presented in chapter 1.3.



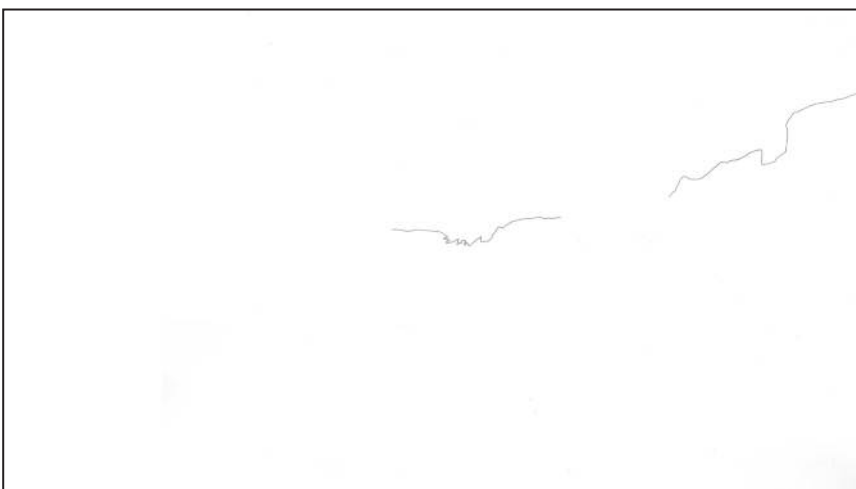
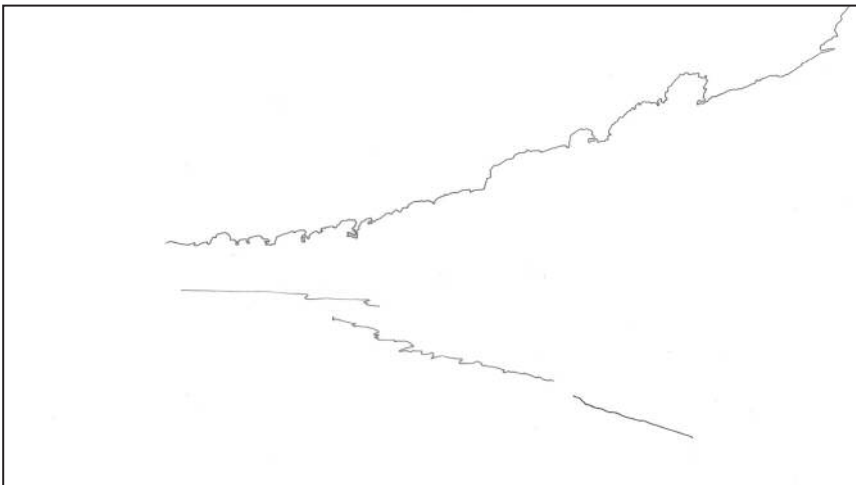
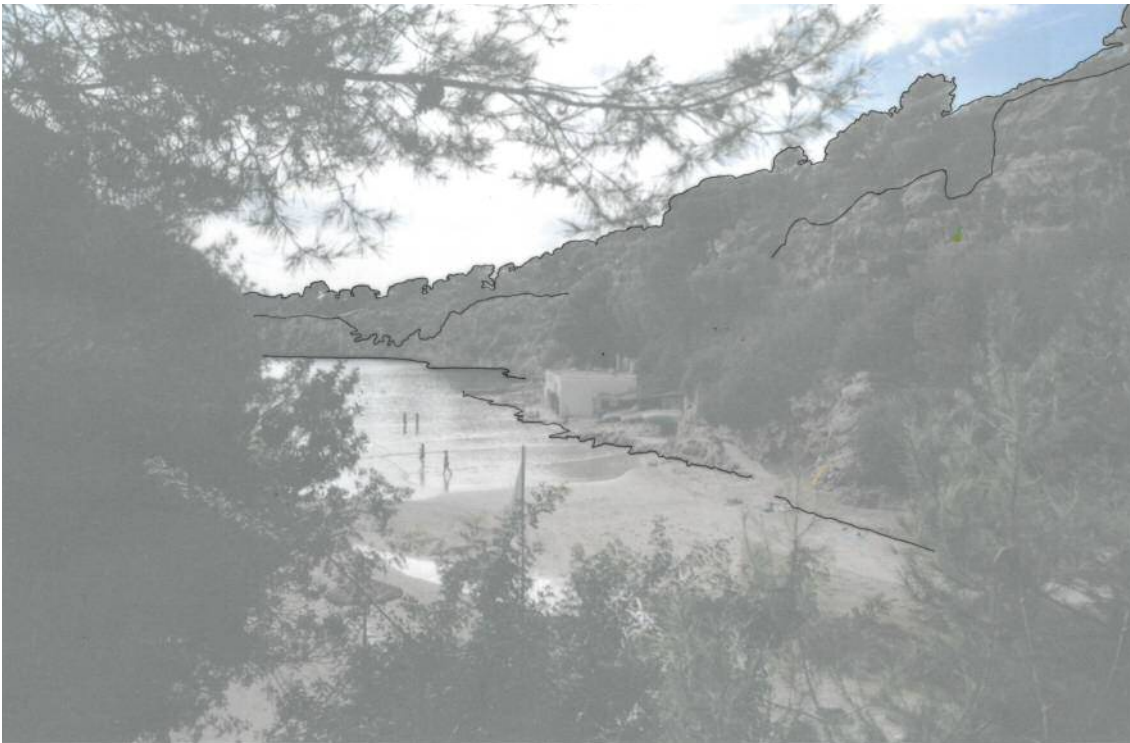


*Fig. 2.2.31*  
Lines defining blobs.

### **Ingress iii: Facing Inland - Act of the Vegetation and Water**

This is the negative of the previous drawing where the rock, the most stable limit, was drawn.

Drawing lines define areas of colour and contrasts. These lines as blobs- enclose- and will differ between seasons as the trees will have grown or lost their needles and/or the *Torrent* carries more or less water or has even has dried up completely. In short, the atmospheric conditions change throughout the year affecting to a certain degree the configuration of the inlet.



*Fig. 2.2.32*  
Middle: Extreme lines defining the middle ground.  
Bottom: Middle lines within the middle ground.

**Ingress iv: Facing The Sea - Act of the Vegetation**

Descending into the inlet and turning around towards the sea, the view changes and with it the limits. The water and sky have more presence as they read together and are experienced as horizontal surfaces placing the visitor between them.

Two lines are drawn: the line defining the end of the vegetation meeting the sky which acts as a horizon, and the line defining the end of the water and contact line with the rock. These two lines belong to the background and relate the two planes experienced as horizontal, and they locate the visitor. These are the primary lines that also define the busy and more or less vertical plane but other lines appear with more attention.

This view has a clear fore, middle and background and the latter is the protagonist contrasting with the luminous sky and reflective water (direct relation with the sky). The background (as limit/boundary) is an end plane/surface that relates and contrasts with the dominant elements, sky and water in the middle near and the "over there" background.



Fig. 2.2.33  
Three geometric horizons.

 HORIZON

## Inside

### **Inside: Three Views**

These three views provide the delineation of the limit from inside the inlet, in contrast with the previous views. The pictures were taken from inside the inlet and provide general views from a specific height, defining the extent of the view and structured from the geometric (illusionary) horizon line. The top and middle views look towards the sea, and the bottom view looks inland. The body is contained and the view is projected and understood from the middle ground, embracing the back and foreground (sky and sand/floor). In these views, the middle ground, constituted by the façades of the inlet, has the double function of linking the sky and the sand as well as structuring the views. The façades act as my immediate limits that contain, and allow for inhabitation.



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**PROJECTION**

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**ANCHORING THE VIEW**

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∨  
∨  
**BODY/EYE POSITION**

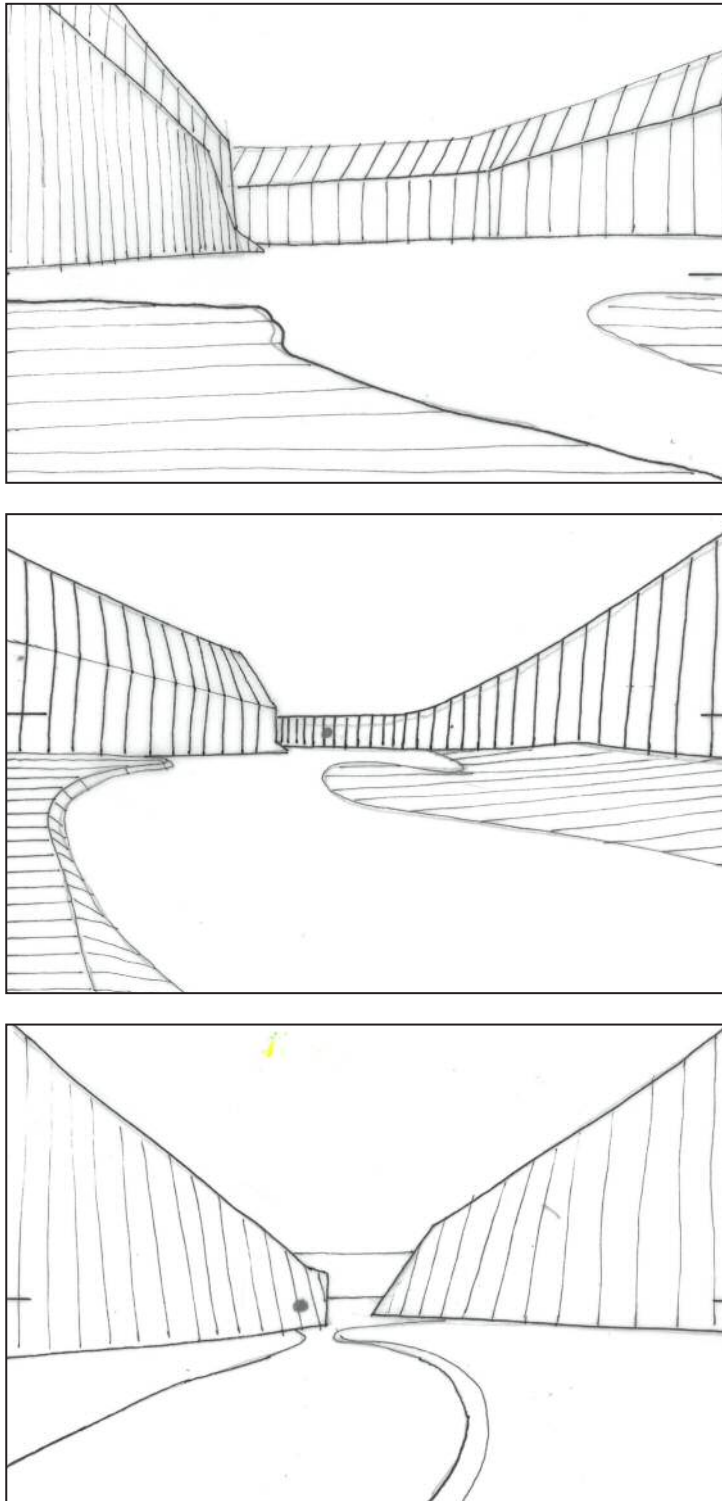
Fig. 2.2.34  
The positioned body taking the photos within the enclosure.



**Inside: Three Views: Plan**

The plan shows the located body within the inlet and how the view is intrinsic to the place and viewer. These are simply still shots providing a partial view, far from how we experience a place. Between the three views the eye will have surveyed innumerable amalgamated views. However, these are representative views that will stay with me. The plan shows the location of the viewer and her orientation and how this determines the placement of the geometric horizon, as well as the illusionary surface where everything is projected to form the representations with an implicit dependency.



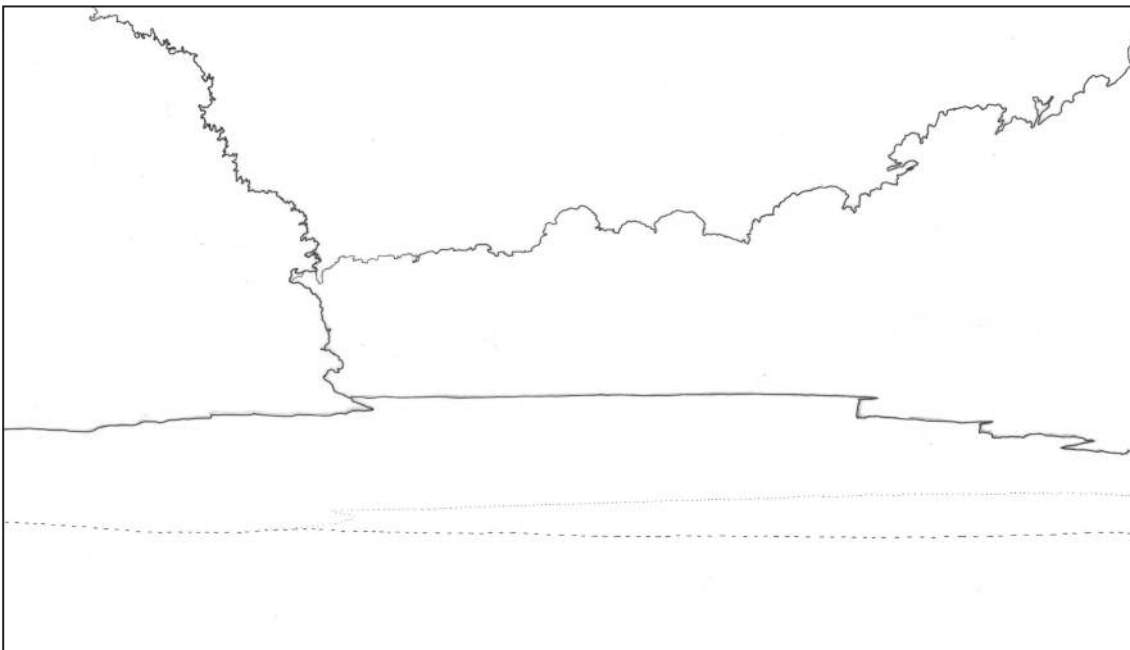


*Fig. 2.2.35*  
Enclosure of the three views. Could these be large avenues?

**Inside: Three Views - Enclosure**

Lines defining the main elements were drawn but my eyes quickly take in the surfaces forming the enclosure: sky, façades and floor. Rock defines the vertical surfaces even though the green of the vegetation is prominent, but I am aware that the substrate and end limit is the rock. Water and sand share the horizontal surface where I walk, stand and take position within the environment. The water lies on the sand and against the rock. Water articulates the rock and sand whilst my eyes form the façades of rocks decorated with vegetation and the floor of sand. The three materials are in contact with the air/sky but the façades of rock and vegetation host the horizon line. Thus, the façades, in a similar way as the water, articulate the floor-sand-water.

In this view, lines are drawn representing illusionary limits but they really define liminal planes (change from surface to plane). Liminal, as these are at the limit, separating and uniting. They are in-betweens as each has its own qualities intrinsic to them. The façades delimit the sky and floor and these two start their presencing on their contact with the façades. The water is between the façades and is supported by the sand, both allowing for this to exist in its own but particular way.



*Fig. 2.2.36*  
Lines defining the end of elements: air vegetation, rock, water.

## In-habitation

### Floor & Ceiling

The everchanging sky and water and their dialogue. We stand on earth and in this case, the sand supports water in the opposite location to the sky. The sky is reflected in the water following the same principles as the reflection of an object in a mirror. In the reflection of an object in a mirror it is easy to identify and separate the object and its reflection, each with clear limits. With the sky this is a bit complicated. Where is the sky? What is reflected on the sea?

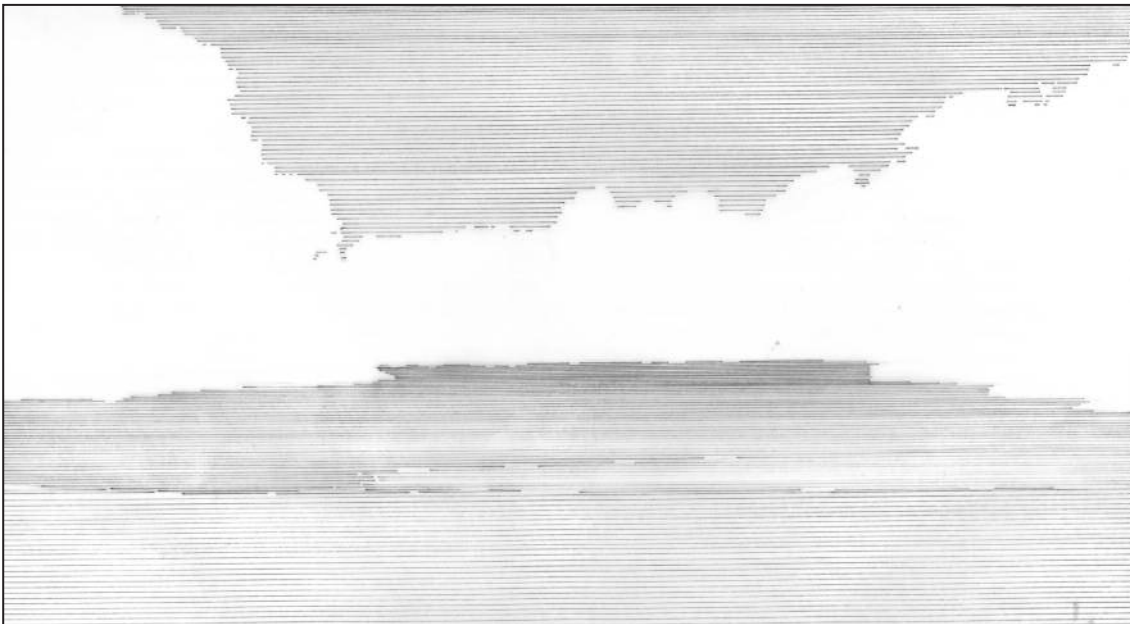
The Oxford English Dictionary defines sky as “the region of the atmosphere and outer space seen from the earth”<sup>10</sup> and astrophysicists refer the sky as the celestial sphere. This is an imaginary dome located above us where the sun, clouds and stars appear to travel. This imaginary sphere, in some way, resembles the gridded surface Albrecht Dürer<sup>11</sup> located between the object and himself enabling him to represent the object with “precision”. Thus, the sky cannot be located precisely, whereas it is conceptually defined and is part of any of our outdoor experiences. On the one hand, on cloudy days, the sky is experienced in a similar way to the ceiling of a room; it is a limit, a referential “illusory” surface that defines our perception, contributing to the relative measurement of things. On the other hand, on a clear day, the sky seems to have been lifted, making a very different impression on the visitor although she is still aware of it. Then, based on her experience, where is the sky? In the picture opposite, is the sky in the water? It is a phenomenal element that is defined by the act of seeing (height, specific point of observation) defining the other, the water. Until now, the limit of the water was clear; the surface where this ends. But the reflection of the sky has bridged them together, has contested the water,<sup>12</sup> the sky is on the water starting its presencing.

The dotted lines on the diagram mark the end and beginning of the reflection, the subtle presencing of the water while the sand overcomes this limit.

<sup>10</sup> "Sky", n.1. OED Online, *Oxford English Dictionary* (Oxford University Press) <[www.oed.com/view/Entry/181136](http://www.oed.com/view/Entry/181136)> [Accessed 6 June 2018].

<sup>11</sup> Mentioned in Alberto Pérez-Gómez & Louise Pelletier, *Architectural Representation and The Perspective Hinge* (Cambridge, Mass; London, England: The MIT Press, 1997), fig. 0.14.

<sup>12</sup> Edward S. Casey, *The Representation of Place. Landscape Painting & Maps* (Minneapolis: University of Minnesota Press, 2002), p.32.



*Fig. 2.2.37*  
Lines defining the sky, sea and sand.

### **In Between**

Water, sky and sand: these three elements are ever-changing, but at their own pace. The sky changes with little notice. We can perceive it as a clear blue sky or a thick sky with clouds all day or we can experience a changeable sky modifying the sea-sky relationship and their limit. Similarly, the seawater is in movement depending on different variables though this is a continuous rhythmic movement that we appreciate: in-out, in-out, in-out,...up-down. Lastly, the sand is perceived as a mutable element contrasting with the sky and sea as it is lazy. The sand modifies and adapts as a result of the interaction with air, wind and/or water. The waves are imprinted on the sand and the debris marks the sand and through their position we know more about the forces of the sea. The drawing maps the ambiguous and temporary liminal strip between the water and sand, showing the influence of one on the other. The water's movement correlates with the positioning of the debris, associating both. It is apparent that the sea level has changed as the water has receded temporarily and the sand has gained territory. In Trías' words, this is a territory on the *limes* belonging to the *liminai*.



Fig. 2.2.38  
Foreground and background framing the middle ground.

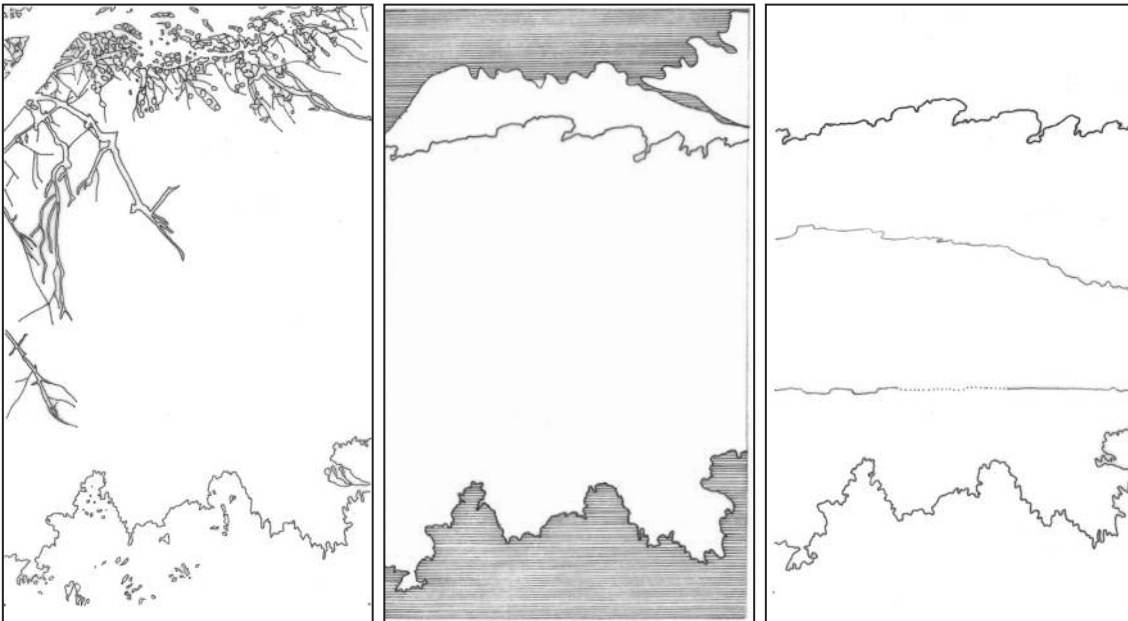


Fig. 2.2.39  
a) Foreground Framing, b) Foreground & Background, c) Middle Ground Marks

### Choreography of Grounds

This view has three distinctive grounds (a, b, c). The foreground is composed of vegetation framing the other two (a) and drawn in the first diagram. This frames the other two by putting distance between the here and there. This happens as the foreground is directly juxtaposed with a distant double middle ground and an "over-there" formed by the sky. The over-there is simple to define in the same manner as the foreground. The middle ground (c) has two articulated sections: sea and rock-vegetation and the limit of each has been drawn with a line. The bottom section draws our attention for its peculiar ever moving and reflecting element. This could also be defined as an in-between, as I am standing on rock and I am aware that this wraps around or has been carved, becoming the support of the water. Hence, the water with its opposing nature to the rock is "something" that separates and sits in-between the two. On the contrary, the vegetation depends on the rock and while I draw the line where one finishes and the other starts, I realise that this does not exist as one depends on the other; the roots of the pine trees penetrate the soil reaching the rock. But, it is worth noting that the façade is bare of vegetation, so a line is drawn by my eyes.



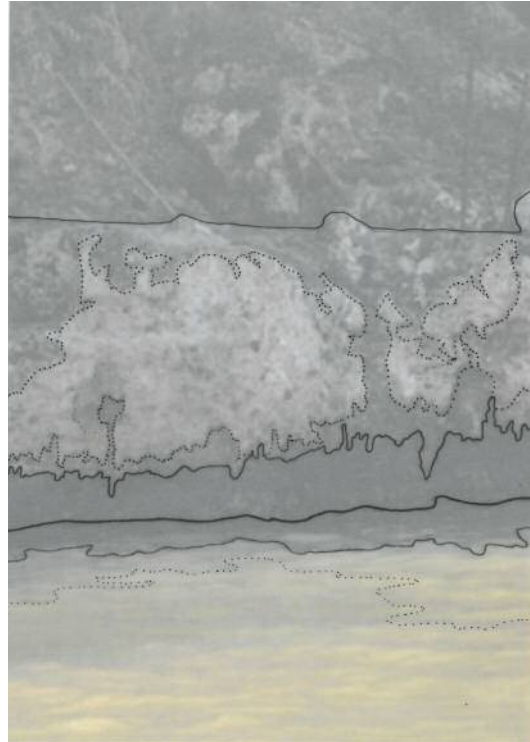
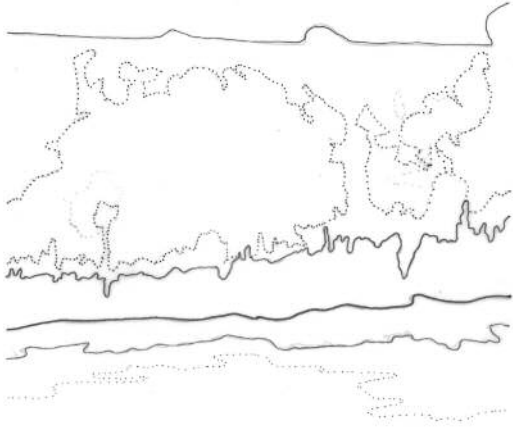


Fig. 2.2.40  
Rock Water

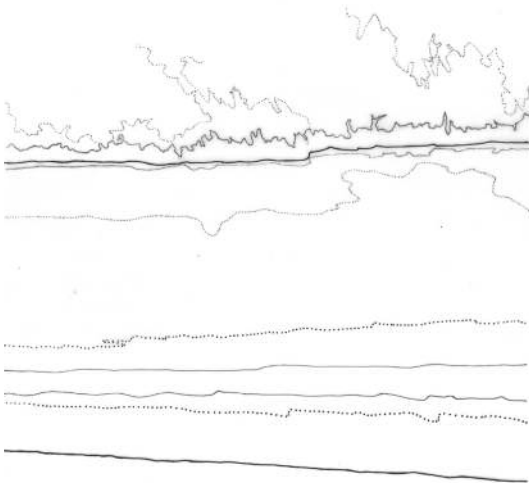


Fig. 2.2.41  
Rock Water Sand

### Rock - Sand - Water

In this view, the sea reads as an in-between. On the one hand, the detailed and rich rock defines the background which is delineated by a line defining the water level. On the other hand, the foreground is defined by the sand, which fades away under the water. Somehow, it reads as if the sea links the rock and the sand. Perhaps because the sand fades under the water until it encounters the rock and the water is juxtaposed to the sand.

The first limit to be identified is the encounter of rock and sea. This encounter is recorded by a line, which in Sennett's terms would read as a boundary, a hard and passive edge. This delineation where the water ends is associated with the low black band of rock in contact with the boundary line. This black band registers the type of contact and influence the water has on the rock, contradicting the first reading. Furthermore, to the other side of the boundary line, the rock is reflected in the water diluting one of the primary qualities of water, transparency, this being perceived as a solid that reflects. The presencing of the rock manages to exceed the boundary line and manifest itself on the water making the boundary less of a boundary. Even though the rock initially reads as bearing and been contested this also is reflective and generative.

The foreground has different proprieties from the background. Sennett would consider it a border due to exchanges and a certain degree of permeability between the two realms (wet and dry). On reflection, the first drawn line appears to be faulty as the sand disappears under the water making it difficult to draw just a line, a limit. A line is drawn where the shine of the water is discontinued. Then another line is drawn where the water has presence-manifesting as water, liquid- and a third line is drawn where the water changes behaviour due to the topography, allowing the sea to begin its presencing. These three lines present the loose and fluctuating width of these double and asymmetrical limits. This is governed by fast and oscillating dynamics revealing the complex relation between these two disparate elements that unite and separate in a very intimate way.

The water not only defines the middle ground but also determines the type and dynamics of the limits without producing firm generative lines. The sand meets the rock, and my eyes may not see this on days of rough sea, but my mind recognises this. The water reads as an added element linking sand and rock and as in-between, with its own nature, presence and evolving limits with the elements it links.



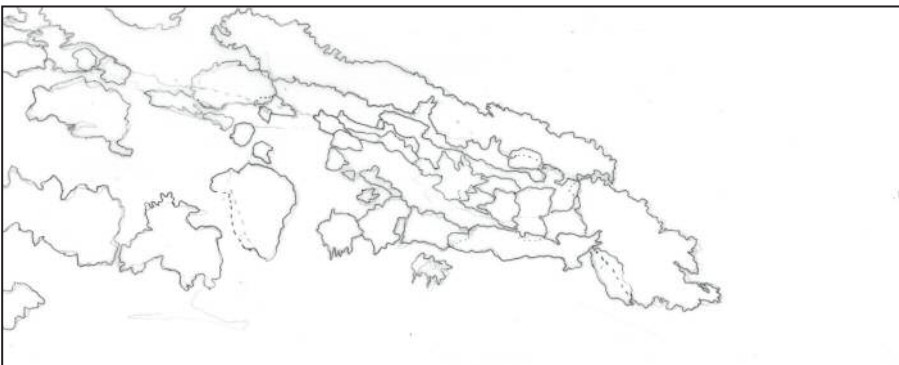
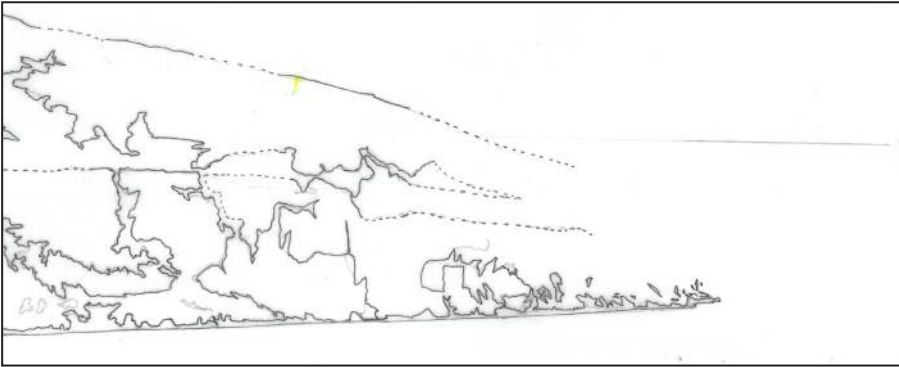
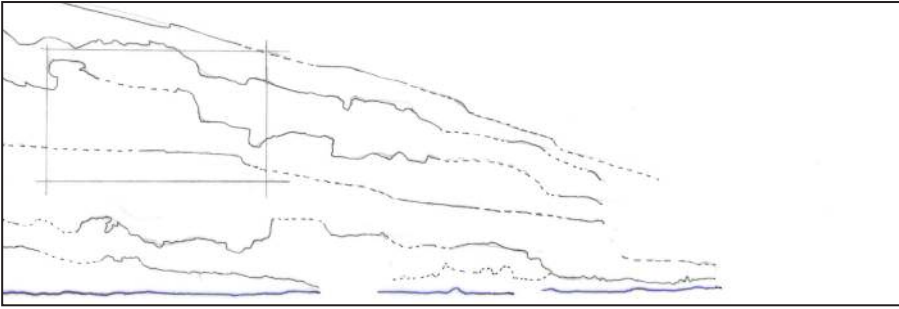
*Fig. 2.2.42*  
Layering of the façade. Illusionary lines.

## Façade

### **Rock – Vegetation - Structure i**

The sides of the inlet read as façades delineating it; the vessel where the visitor stands. It is reminiscent of an urban street standing between two façades. The east façade shown on the opposite page is composed of rocks as a supporting element, vegetation and houses in the far background.

Rock cavities are lined up creating strong lines that complement the neat single line defining the level and limit of the sea on a calm and sunny day.



## Rock -Structure ii

The first diagram registers with lines where the rock drastically changes from light to dark colour enabling the visitor to read the cavities. The second diagram shows the cavities that read and are experienced like mouths penetrating inside the rock, contrasting with the vertical parameter washed by the sun light. The change is abrupt and powerful to the eye. The vegetation, juxtaposed to the rock is mapped in the third diagram with blobs that provide colour to the façade. The final diagram displays the tree trunks associated with the cavities where the roots of the vegetation belong. These read very differently to the vegetation even though they are part of it.

The cavities are the most permanent layer though our experience of them changes from morning to afternoon due to the change in the direction of the sun. The layer of blobs of vegetation depends on the rock and it changes between seasons. The trunks can easily and quickly change but due to an external agent producing extreme conditions. Thus, all the layers change at a different pace and for different reasons. It seems that the vegetation is the mediator or interface between rock and sky absorbing and registering the sudden changes. The vegetation protects the rock from the weather and decay while the vegetation needs the weather to survive.

*Fig. 2.2.43*

a) Layer 1a, rock, lineal lines.

*Fig. 2.2.44*

b) Layer 1b, Rock mapping cavities and the "here" and "there". Cavities of the rock mapped using the same technique as the vegetation.

*Fig. 2.2.45*

c) Layer 2, Vegetation. Vegetation as the decoration element attached to the trunks and through these to the cavities. Vegetation part of the light-shadow structure.

*Fig. 2.2.46*

d) Layer 3, Trunks. Tree trunks associated with the cavities where they are rooted and belong.

*Fig. 2.2.47*

e) Layering the facade.

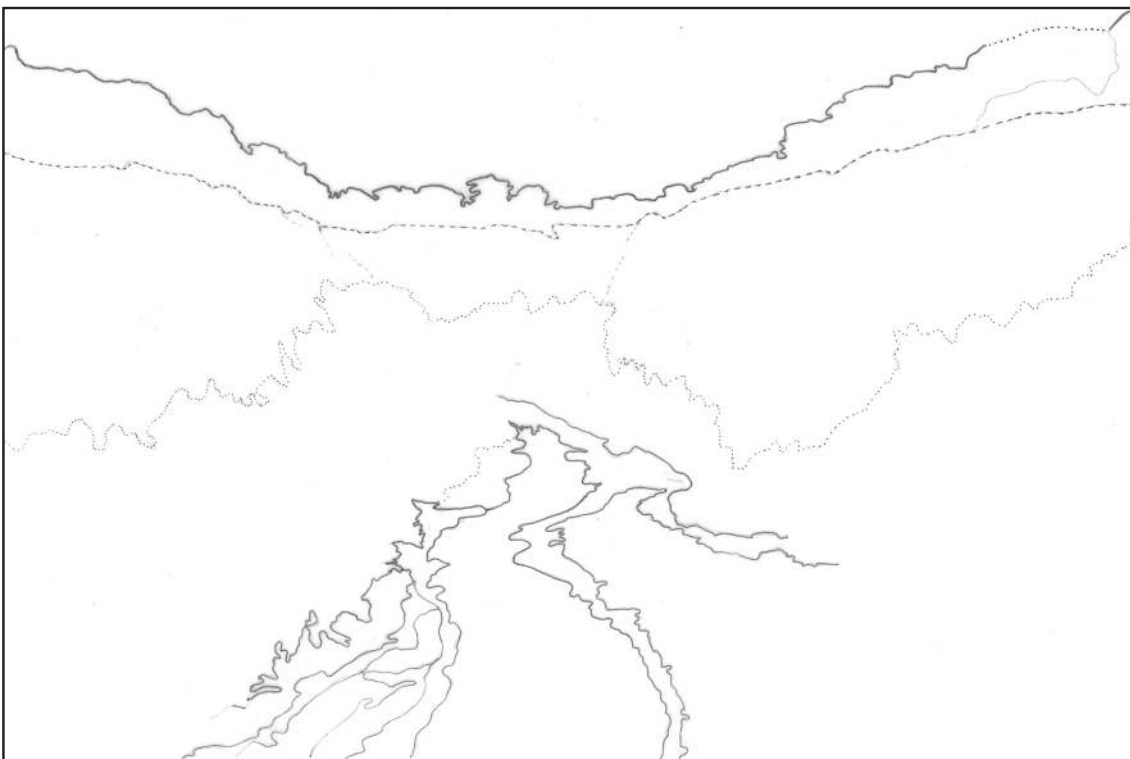
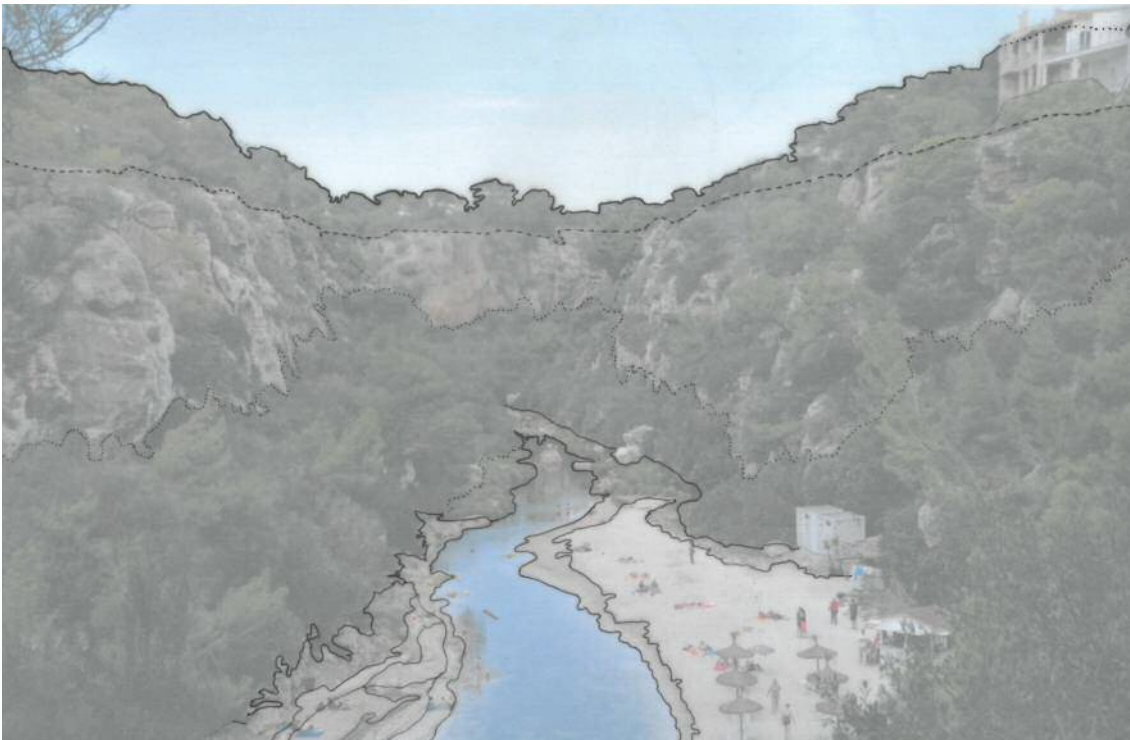


Fig. 2.2.48  
The interrelated limits.

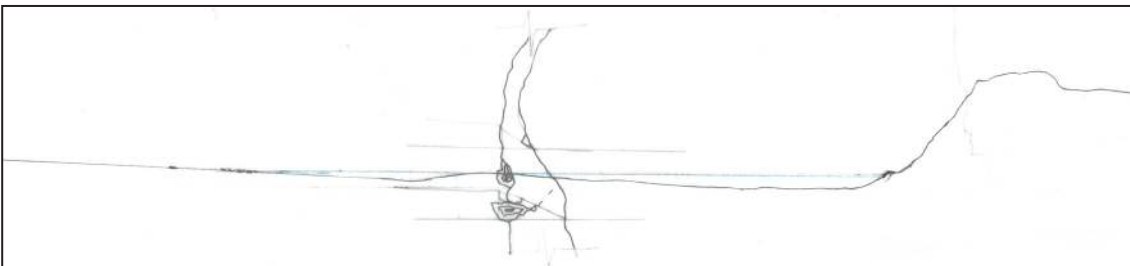
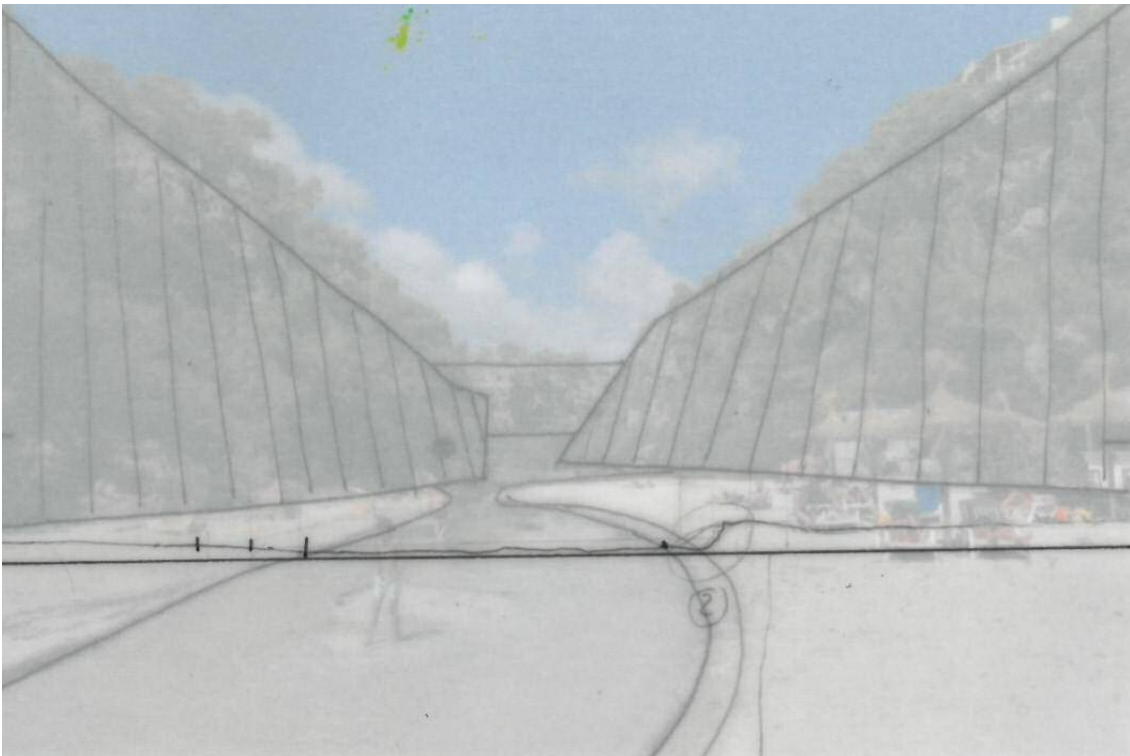
## The *Torrent* and its Sides: The In-Between and Edges

### **Water Through the Inlet i: The In-Between**

The façades of the inlet, together with the floor, limit creating enclosure where inhabitation takes place. Whatever the visitor does or looks at, it is framed and related to them. The view reveals a synergy between the enclosure, especially the façades and the course of the *Torrent*. The diverse limits (sky-rock/vegetation, rim, rock-vegetation-sky, border, sand-rock, *Torrent*-sand) within the enclosure are interrelated, one placing the other.

In this case, the *Torrent* is fed by rainwater coming from inland and finding its way to the sea via the inlet. The morpho-topography of the inlet, in part, determines the *Torrent's* route but as a result of the proximity, the water gently affects and modifies the profile of the sand. The water sits on top of the sand; thus, the sand remains a continuous element, although the *Torrent*, a juxtaposed element, divides the inlet in two length-ways and creates two limits at each side. Hence, the *Torrent* is considered as an in-between as it is an element with its own dynamics and character, interacting with other entities that it contacts physically. The two side limits appear as a consequence of the encounter of two elements.





*Fig. 2.2.49*  
The *Torrent* as an in-between revealed in section.

### Water Through the Inlet ii

The sketch of the section shows the *Torrent* located within the inlet. In the sketch, the topography is exaggerated as the horizontal and vertical dimensions in the public open realm are perceived and experienced differently. The 0.6 metre change in the horizontal direction is neither substantial nor crucial to our experience. It is easy to walk a further 0.6 meters even for a young child or an elderly person. On the contrary, 0.6 metres as a vertical change is noticeable and in many cases challenging or impossible to overcome. In the public realm, overcoming this vertical dimension requires the introduction of more than three steps or a considerable ramp with the associated handrails, a definition of the edge of the goings, etc. The alternative and less visible and invasive solution is a gentle ramp with a ratio of 1:21 which does not qualify as a ramp and in this specific example will need 12.6 metres of horizontal travel. The 1:21 ratio shows the great impact of a vertical change needing a substantial horizontal surface to overcome it. This geometric, even planimetric effect defines our experience. When my eyes are 0.6 metres higher (from my referential surface) due to the level change, the range of my view is greater. I feel I am in a privileged position as I can see further, I see things I could not see before. When the change is gradual, despite the fact of being very small it provides orientation, helping with my placing. Thus, these changes determine my experience and need to be considered. While drawing, I need to find ways to work in section reflecting the impact of vertical changes as this cannot be assessed by simply deploying geometrical dimensions. These changes are reasonable when working at smaller scales than 1:50 but this is predominantly an architectural scale and not much used in urban design.

The *Torrent* reads as an entity-in-between- with two individual limits even though these are part of the same element and shown in the section; we are aware of them but we do not see them. One of the limits is smooth with a gentle topography where debris has found a place. Whereas the opposite limit has topography and this is visible even from a distance as the sand is wet-revealed by the change of colour.

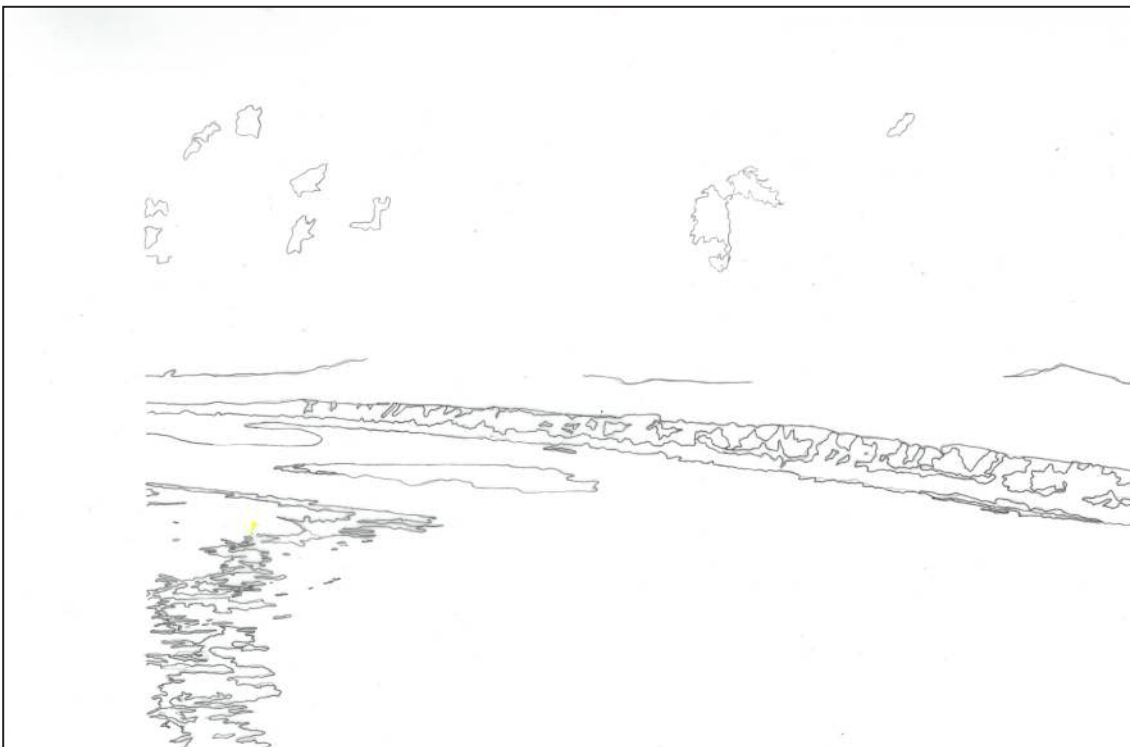


Fig. 2.2.50  
Asymetry of the Torrent.

## The Edges

The asymmetry of the *Torrent* is evident at its limits or margins. These limits are the result of the encounter between two elements. The *Torrent* (and not the water itself) is considered an in-between as it divides the inlet in two and it is itself an element with its own qualities. This in-between creates the two limits or one to be more precise, but this appears as two to my eyes. These are called edges as these are the result of the water being there. The limit requires the presence of the water and edges are a type of limit.

I am tempted to quickly draw the bands constituting the edges, but when it is time to draw the lines in a specific location, it proves difficult, leading me to further explore other clues to reach a better understanding.

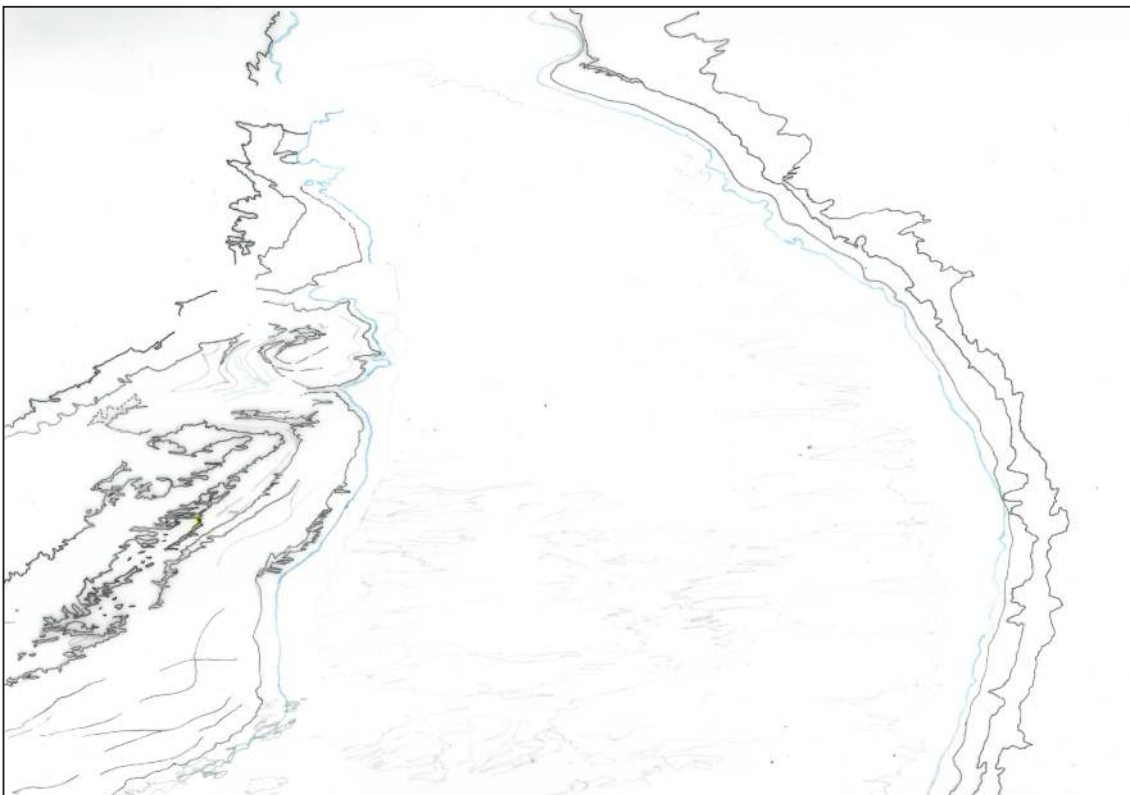


Fig. 2.2.51  
The two edges of the *Torrent*.

## In-Between versus Edge

### **The Two Edges of the *Torrent***

The west edge looks and feels busier than the east one. Although the west edge is physically easier to cross than the east edge as discussed previously. The lines are drawn from the blue line, the water level where this disappears. The gentle topography of the west edge hosts debris which is visible and defines the thickness of the line. On the contrary, the east side has a noticeable topography defining two clear levels. The level of the *Torrent* and the bathing platform. Lines defined by colour and light (correlating to the level of humidity or content of water in the sand) are drawn somehow correlating with contour lines and strips of debris. Thus, there is a dialogue between the experience of the edge by the eye and the body and the diagram can be misleading.

In the in-between; under the water, there is debris that seems to respond to the lines on the other side of the waterline. These are more or less perpendicular to the lines defining the edges and uncovering the movement and direction of the water.

On the Limit

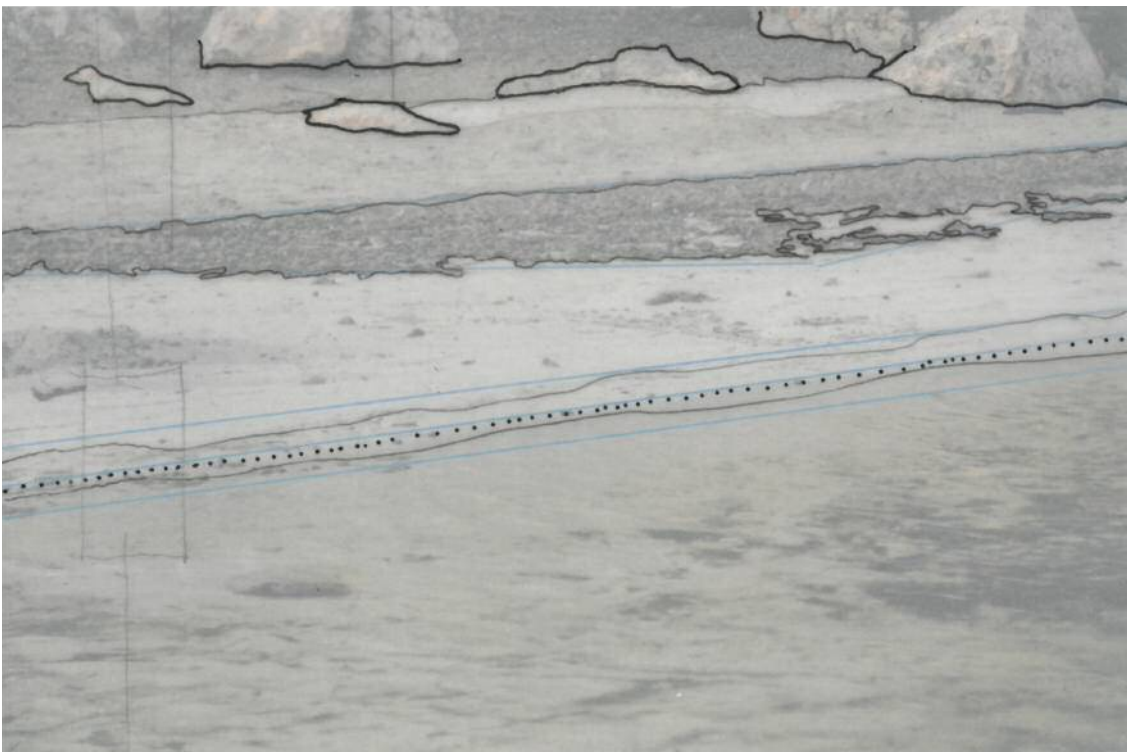
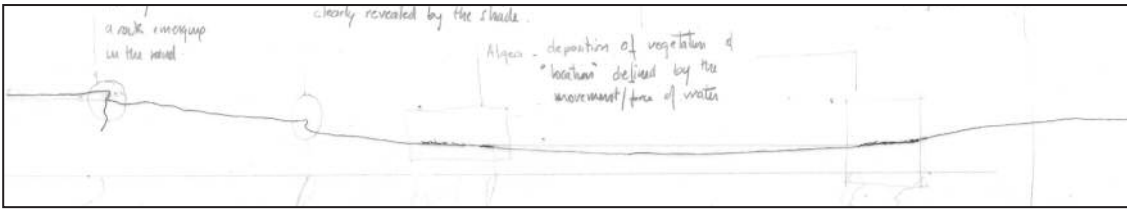


Fig. 2.2.53  
Series of strips from more variable to more stable on the western edge.

### Layers on the Western Edge

The diagram maps the stones with a thicker line as these are very visible and quite stable. The strip of algae, where this is concentrated, reveals the gentle topography that is mapped with two lines defining the strip. This reads as a self-contained stationary blob, but I know that this is temporary. Further to the east, three lines mark the contact with the *Torrent*. The middle-dotted line maps the point where the *Torrent* (water) ends. The upper and lower lines represent the locations reached by the water in relatively short periods of times.

The exaggerated section<sup>13</sup> marks points (relating to lines in plan) that are mainly revealed by the shade. These lines cannot any longer be defined as individual limits, instead there are multiple lines forming the edge where different forces acted and interacted with existing conditions such as the topography and the qualities of the sand as well as the breeze, sun, water change on the *Torrent* due to evaporation or rain etc.

This edge presents a variable strip and part of it fluctuates in a predictable way. The strip is recognisable but not clear and different parts have different intensities. The strip permits the two elements to mingle together without losing their identity. The limit is asymmetric as the conditions, forces and tensions imposed on the middle from the sides and vice versa are very different. The water contests the sand and the sand contests the water in a gentle way, controlling the invasion. Nonetheless, it does not show the attribute of reflectiveness.

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<sup>13</sup> Exaggerated section relates to the drawing that the heights are represented bigger in relation to what they measure. It is applied a constant multiplier for coherence and correlation between all the vertical measurements between them and in relation to the horizontal measurement. This is based on the comment already made where a vertical distance has a different effect on us than a horizontal one. Furthermore, 20 centimetres at the scale of 1:100 translates to 2 millimetres on the drawing. This is nearly invisible to the eye and easy to overcome horizontally but a challenge for many (physically impaired people or children under three years old) when this is vertical.





*Fig. 2.2.54*  
The lines of the east edge of the *Torrent*.

### Layers on the Eastern Edge

On the eastern side of the *Torrent*, the water has created a sharp edge, marking and redrawing the topography. Lines highlight the change of colour tone, coinciding with dry, humid, wet or end line of water touching the sand. The lines based on visual experience are close to topographic lines. Though these lack the precision of the surveyed contour lines used in architecture, urban design and landscape architecture.

This is an edge caused by the water. The bottom and western lines represent the end of the debris under water. The middle line highlights the point of change of colour in the sand revealing where the saturation of water in the sand changes. The more eastern line correlates with the highest point of the section and where the bathing platform begins. Hence a double limit is recognised that defines the inhabitable "strip". The limit is configured with multiple lines with distinctive bearing, delineating the debris, change of humidity and colour of sand and abrupt topographic change. The limit links with the things adjacent to each side of this strip as well as defining itself.

On this side the façade defining the enclosure of the inlet feels very far away, contrasting with the west edge where the edge of the *Torrent* nearly blends with the edge between the floor and the façade.



Fig. 2.2.55  
Marks on the western edge of the *Torrent*.

### **Ephemeral Element**

Debris marks somehow reveal the "inner necessity"<sup>14</sup> of the movement and force of the water that runs over the sand contesting the limit.

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<sup>14</sup> Term deployed by Kandinsky.

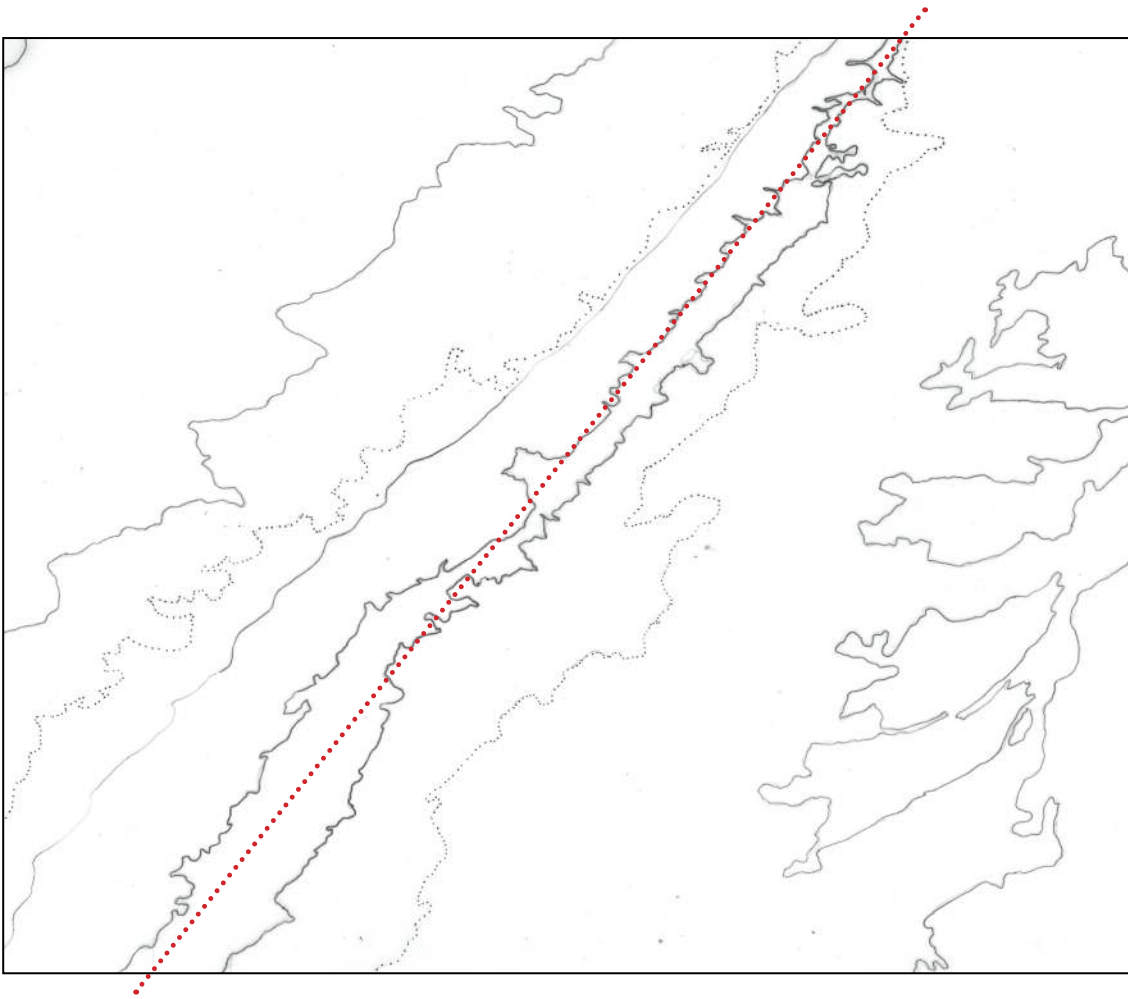


Fig. 2.2.56  
Delineation of the Western edge of the *Torrent* revealing its border condition.

### Eastern Edge: The Notion of Border

The mapping of a detail portion of the west edge reveals something slightly different. The edge hinges. The hinge is set towards the middle of the strip disclosing an imperfect symmetry with three lines at each side. These lines uncover and represent the tensions that Trías identified in the frontier. Trías explained how the border is inhabited and its inhabitants are called the *limitae*, *limes* meaning that they belong to the limit. In this case, the *limitae* is the water, which is represented with a dotted line and, in this position, acquires a specificity inferred from the limit condition. This can modify and erase some of the lines redefining the relations, but it is not itself a limit as it is the *limitae*.

Hence, this is a strip instead of just a line or several independent lines, it is an entity. Lines are drawn at each side of the red dotted imaginary hinge aiming to expose and define the strip (limit). As Trías explains, tensions coming from within define the limit but also from the centre and the other side, meaning it is reflective. Furthermore, the limit is also subjected to tensions from the centre as well as from the other side where the Barbarians inhabit and belong meaning that it is contested. As a result of these tensions, two lines of different intensity at each side emerge, unveiling the double asymmetrical limit. This is due to these tensions, plus external agents that influence the internal, once the strip fluctuates changing over time as a result of the complex relationships between the inner, outer, centre and its inhabitants. Besides, the limit is ambiguous in the sense that it is easily misread or misunderstood. The line representing the water level is juxtaposed nonetheless it inhabits the limit as the *limitae*.

The newly discovered limit evolves as we watch.



*Fig. 2.2.57*  
Marks on water.

### Marks on the In-Between

The water travels from inland to the sea. My eyes read the continuous movement of the water in the gentle waves or at the edges where the two previous studies took place. The movement at the edges is tender, continuous and controlled like the breathing of a person revealed by the movement of their chest while lying down. The gentle waves imprint their movement on the sand (contesting the profile of the sand) and this takes place after the water has been running for a considerable time. However, the sand provides resistance to the movement of the water influencing (reflecting) it. There is a loose and indirect correlation between the imprint on the sand and the revealed movement at the surface of the water, leading to the question, what is happening in this in-between?

The drawing maps the ever changeable and repeating marks resulting from the movement on the water. These lines are the result of an internal force (generating them) influenced by gravity and these are constant without disruption. These would be different if the terrain was mixed with objects of a size and weight that the water, with all its force, was not able to displace. Thus, the surface of the water disclaims tensions taking place at the interface between the bottom/floor and the juxtaposed fluid material.

The limit sometimes is visible and the double limit (the strip) is delineated with its inherent lines, whilst at other times, like the limit presented here, it is less visible and experienced through its reflectiveness. Each line that is part of the configuration of a limit can be questioned in itself, in relation to its bearing and generating. But it can also be questioned as part of the topological limit that is able to reflect and contest.



## Summary

In this chapter, the exploration of the limits of the inlet through their representation has been presented. These lines of the limits have been codified, encoded with meaning and decoded to explain them. It has been necessary to supplement the diagrams with reflective text explaining the dynamics and forces at play. Hence, the text and diagrams are interdependent, and this may lead to the conclusion that the limit cannot simply be represented in order to present all its complexity but the exploration has been worthwhile to enable me to think more deeply about the limit and unravel some complex notions.

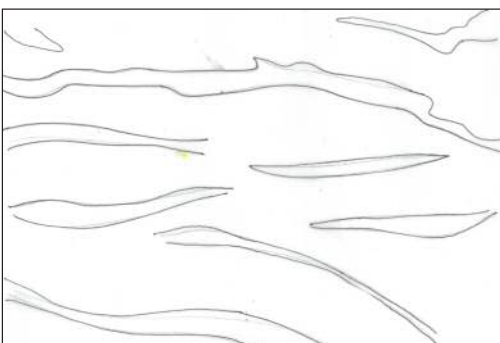
The act of drawing and the graphic representation of the limit revealed that the limit is multiple and multifaceted. Multiple, in the sense that each limit works in a particular way based on the unique disposition of the attributes of the limit depending on its location. Moreover, the limit is multifaceted, revealed as complex, multi-layered and multi-dimensional spatially and temporally depending on the scales and contexts within which this is considered. Thus, there is not one limit but limits. An example of this is the coastline of the island which was drawn and redrawn at different scales, each time redefining its meaning. Within the Mediterranean context (2.2.4, 2.2.5), the line depicts the limit between the land and the sea allowing for a twofold understanding directly associated to the attributes of the limit joining and separating and reflecting and being contested. The line determines a territory whilst separates it from the sea and vice versa. This line positions the land in the sea. Hence, the sea is simultaneously determined by the land and perhaps this is understood as an in-between. Yet, I cannot hold both understandings concurrently in my mind or eyes but in sequence. At the island scale (2.2.11), the line was redrawn depicting the same limit with a different line-with more definition or precision, in the words of the architect- and revealing the same attributes above. However, it takes another meaning due to the particular framing presenting and understanding the island as an individual entity with own identity; represented and representing by the line. Zooming in (2.2.14), a part of the line of the island was redrawn again, revealing a discontinuity on the coast-within the line-, and its morphology; an inlet. At this point the line folds, unfolding into multiple lines displaying a strip that it is inhabitable converting the limit into a double one; one at each side of the strip and accommodating and displaying asymmetry. This strip is ambiguous and fluctuates as several lines define it and these were carefully selected and explored (2.2.25, 2.2.26, 2.2.29, 2.2.30, 2.2.32). These lines could have been re-drawn again and again exploring the effects on the physical limit due to external forces of periodic daily and seasonal variations.

The representation of the limits of the inlet have been presented in a loose way in the order these were unveiled during the visits and in the description included in Part 1. Some attributes of the limit were revealed more acutely than others. For example, the line the rim of the inlet (2.2.30) encloses, gathers whilst joining and separating like the bridge of Simmel. There is a prominent line from where the limit hinges and displays in a changeable but recognisable manner while this is observed from the ingress and the inside of the inlet and the other attributes act and hang from it. Conversely, this limit represented in plan (2.2.25) or section (similarly to 2.2.26) displays differently where ambiguity, asymmetry and fluctuation take importance whereas the attribute of joining and separating is redefined. The stream is revealed as an in-between in section (2.2.49), that joins in one direction and separates in the other. It is inhabitable, while the stream has two limits, one at each side and each displays a double limit (2.2.51). Each is revealed as double, inhabitable and asymmetrical strips which have an undefined, or perhaps ambiguous, middle from where the limit hinges and its asymmetry is perceived and fluctuates in a rhythmic manner. Part of the fluctuation is a result of the internal forces from within. This is something not represented but understood while drawing, disclosing the reflectiveness and contestedness of the limit displayed through the nature of the lines (2.2.56). The limit between the rock and the water (2.2.40) and the water and sand (2.2.41) is similarly revealed, but with a greater degree of fluctuation and lesser degrees of joining and disjunction. The attributes of reflectiveness and contestedness present spatial resemblance but there is a discrepancy in the tempo informing the fluctuation as each material has a distinct degree of involvement.

Thus, the drawings indicate how the limit reveals the best and the worst of each element, its characteristics seen in action. The exploration of the limit reveals that it is a good place to learn about the fundamental qualities of things. It is like getting to know somebody not just by their appearance but their actions, reactions and movements. Appearance is a part of the person, an important part, and we are trained to read, analyse and survey. However, it does not yield the defining characteristics of the person that Christian Norberg-Schultz refers to, and Jeff E. Malpas, Edward S. Casey and others follow a similar strand of thinking. The limit is where things display, act, react and move, exposing their nature allowing me to understand and comprehend a bit more of their qualities. These drawings represent Heidegger's notion of the limit,<sup>15</sup> where "something begins its presencing"<sup>16</sup> making sense and taking meaning. The word "presencing"

<sup>15</sup> Limit and boundary are used as a common noun and notion agreeing with Malpas and differing from Casey and Richard Sennett.

<sup>16</sup> Heidegger, p.152.



*Fig. 2.2.58*  
View of fresh water meeting seawater (top)  
Delineation of the meeting of the different layers  
of water (fresh and sea, middle two) and sand  
(bottom).

has great power, and I have been able to explain it, through examples that I have experienced and explored through drawing, independently of reaching a representation that somehow encapsulates in its fullness the richness of the limit.

Heidegger believes that we exist through dwelling "on the earth" and "under the sky",<sup>17</sup> but does he mean that being and dwelling takes place on earth and beneath sky, and that we make sense of our being through the frame provided by the sky and earth that depends on our everchanging location? The sky and earth are always with me as well as the horizon.<sup>18</sup> All the limits presented in this case are within and related to both, but how these two are revealed to me changes and their presence is presented by the limit: the horizon is where both meet. All the limits are presented from specifically located views and, as I change position, the limit changes or reveals itself differently. A view is complex, located in spatio-temporal choreography. The body of the viewer is located in such a way that it is able to discern a background, middle ground and foreground by its implicit limits. How these limits are put together and choreographed is crucial to experience and, in many cases, one of the grounds takes central stage, being complemented by the others. The view, and thus also the drawing, is determined by its specific location but also by external forces like light and temperature.

In this research up to this point, limit and boundary have been treated as interchangeable words following Malpas' thinking. However, the experience of drawing these limits prompts a reflection. The In-between takes place when an element is juxtaposed and discloses in section, like the water in the inlet. Seawater and the water of the *Torrent* read as an in-between that creates edges, with the water as the acting element and the sand and rock reacting to its action. The sand presents edges resulting from the water's forces and the sand's reaction. In contrast, the table has edges and I can represent the table through its edges, while I partially perceive the tree through its edge and I draw its edge to represent it. The sand presents itself through a surface that is its edge, or can be edged, but also can be marked.

Through the act of drawing with lines, I gained a better understanding of the "mark". The mark, the limit in itself, and the influence of the mark on the surroundings revealing its reflective attribute, and the mark as a result of the surroundings showing that it is contested by them. I reflected on this whilst presenting the *torrents* crossing the island and the *Torrent* crossing the inlet. Thus, the mark stands as a mark per se, but also the mark that defines and/or reveals an

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<sup>17</sup> Heidegger, p.147-148

<sup>18</sup> Horizon is used to refer to the experiential or the geometric horizon that in some occasions may differ.

On the Limit

otherwise invisible or more intangible reality. In contrast to this materialised limit, the majority of the limits represented are composed of illusory (as different to “made up” lines) lines.

Being able to represent them has been crucial to reflect upon the notion of the limit in detail.

Reflecting on the illusory line:

*I cannot touch it,*

*It is not physical*

*It does not exist*

*I experience it,*

*It touches my eye*

*It stays with me*

*It exists*

The line exists because it helps me understand and structure what I experience through my eyes. It stays with me, in other landscape and places. This may be manifested or experienced differently but in essence it is the same. But, are the limits being fully represented in the way we experience them?

The figure-ground technique is implicit in many of the representations and was present in the “thinking while drawing” process, making me to move from one view to another. The hatch, the selection of lines and even the changes in coding the lines sought for that other/complementary display. In the change of scale and in some cases of the frame of the view the limit is redefined displaying differently but not in a contrary manner disclosing its topological attribute. Thus, the personality of the limit is revealed during the process. The experience of drawing is empowering, providing a clarity to the working definition of the limit yet at some level it is frustrating as the drawing shows a static view and it is left to the mind to correlate the representations at disparate scales and views (frames).

The exploration of the urban case studies needs to reflect and pay special attention to clarify the terminology around the limits as well as exploring further the specificity of the attributes in case studies where measurement will be embedded in the representation.



## 2.2.2 In Architecture and Urban Design

This section explores the experience of representing limits in architecture and urban design. First, *L'illa Diagonal* is introduced, followed by the Cerdà Block: *Jardins de Lina Òdena*. These case studies have been visited on several occasions in different seasons between 2007 and 2017, always during daylight. During this period, *L'illa Diagonal* has not been subject to major visible changes other than minor updates of some retail units and variations in the vegetation in the park at the heart of the superblock.

In the same manner as the *Cala Pi* case study, a considerable number of pictures were taken during each of the visits and these were followed-up with written notes taken after the visit. The descriptions presented in chapter 1.2 were completed prior to the drawing studies. For these enquiries into the limit through drawing, many documents have been consulted and, in some cases, these have become the basis of drawings and investigations. Current and past aerial views, historical maps, current maps and drawings have been used. Although CAD survey drawings were not acquired, photographs by the author were used as well as descriptions of the limits of these two case studies presented in this document in chapter 1.2. and sub-chapter 1.2.1.

I used the camera in the same way as for the Inlet. The camera recorded the two case studies and then these were organised in relation to the journey taken from arrival, moving through the study area to departure. The camera encapsulated long views next to detailed views or moments within the whole, back to distant detail and to the general views. Hence, as I visited the study area again and again, the eye targeted moments when a “thing” ended, something was contrasted or next to another thing, or just looking for subtle changes attracting my attention. Both studies, as with the Inlet, are approached broadly reflecting my experience of the places from the large scale to the detail, and the journey has guided the enquiry and its presentation. In the second phase of the enquiry, the limits were represented by codifying, re-codifying and de-codifying its lines. This involved an iterative process imagined in connection with the theoretical enquiries into the limit undertaken previously.

The outcome of this enquiry is two series of diverse diagrams familiar to the practice of the architect. In some cases, it includes studies in plan and section and in others relating to photographs or maps. In each, the limits are presented in a sequential manner, replicating the journey taken when visiting the case study sites and thereafter deployed in the descriptions.

However, the *L'illa Diagonal* study positions the superblock in the city and its surroundings as well as presenting the spatial configuration of the superblock in relation to the limit. *Jardins de Lina Òdena* starts with the block as part of the *Eixample* proposed by Cerdà and its introduction from the limit. The representations do not cover all the limits, and the selected ones do not always correlate completely with the ones presented in the descriptions in section 1.2.1. Once more, the drawings in this section are not precious, seeking to display, consider, reveal, organise, and reflect.



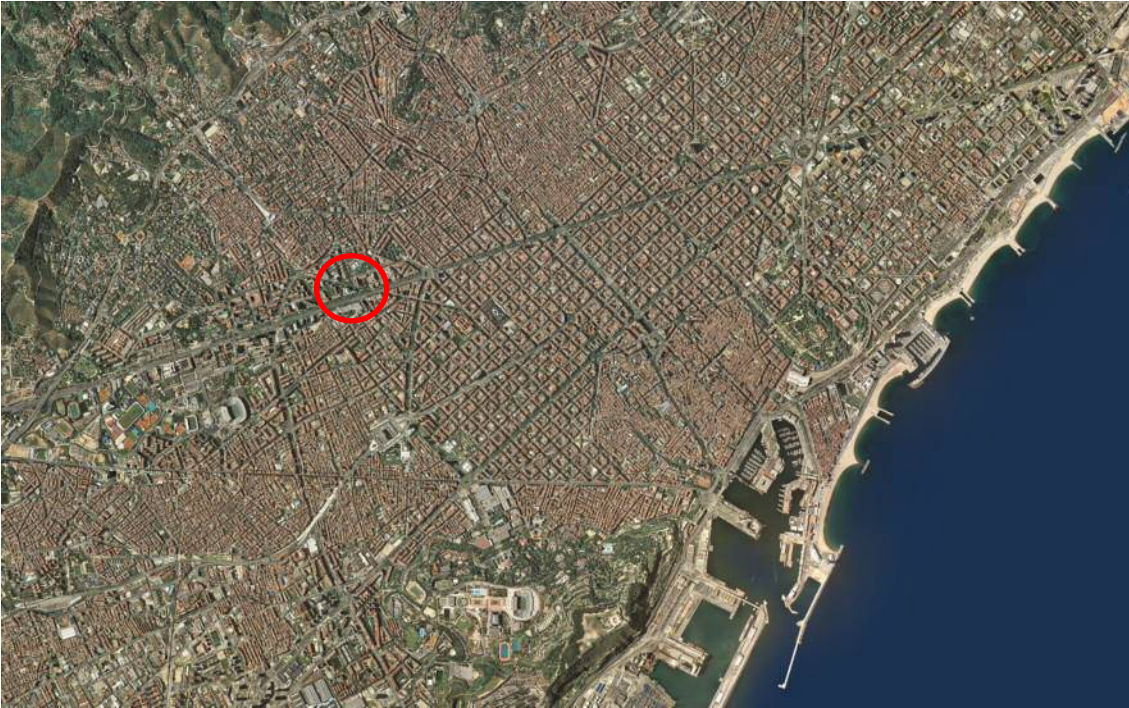


Fig. 2.2.59  
Aerial view of Barcelona, *L'illa Diagonal* highlighted with red circle.



Fig. 2.2.60  
Aerial view of *L'illa Diagonal* superblock.



## The Block: *L'Illa Diagonal*

This section explores the representation of *L'Illa Diagonal* as an in-between, mediating space between diverse urban conditions. It starts by seeking to draw the placement of the superblock within the city of Barcelona, its district and the superblock itself. It ends with the representation of the three linkage-entrances already described in section 1.2.1.

*Avinguda Diagonal*<sup>19</sup> where the superblock sits, the superblock, *L'Illa Diagonal* building and the three linkage-entrances are explored as limits. They are delineated here via architectural drawings supported with photographs taken at different visits, cartography available from the *Ajuntament de Barcelona website*<sup>20</sup> and for *L'Illa Diagonal*, drawings published in journals.<sup>21</sup>

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<sup>19</sup> *Avinguda Diagonal* is the name of the grand masterplan gesture that crosses the grid of the *Eixample* from the sea to the north-east, to the University district in the south-west. It translates into “*Avenida*” in Spanish, or Avenue in English. The shortened form “*Avinguda*” is sometimes used in the text.

<sup>20</sup> *Ajuntament de Barcelona website* <https://w33.bcn.cat/planoIBC/ca/> provides access to the public to diverse portals including planning information, cartographies including historic maps and photos and aerial views. This website also is linked with portals providing cartographic information of the metropolitan area of Barcelona.

<sup>21</sup> *L'Illa Diagonal* is available in José Rafael Moneo, and Manuel de Solà-Morales, ‘Equilibrio de Masas: Manzana Diagonal’, *Arquitectura Viva*, 35 (March-April 1994), pp.50-57; José Rafael Moneo, ‘Rafael Moneo 1990-1994’ *Croquis*, 64 (1994), pp.102-119; José Rafael Moneo, Opening, *AV Monografías*, 36 (1992) pp.62-65; José Rafael Moneo, Rafael Moneo. *Remarks on 21 Works* (London: Thames & Hudson, 2010). Manuel de Sola-Morales website [http://manueldesola-morales.com/proys/Illa\\_Diagonal\\_eng.htm](http://manueldesola-morales.com/proys/Illa_Diagonal_eng.htm).



Fig. 2.2.61  
Diagrammatic plan of Barcelona. Red dot denotes L'Illa Diagonal.



Fig. 2.2.62  
Current map overlaid on historic map from 1890.

### ***Avinguda Diagonal* Link**

*Avinguda Diagonal* is the main artery within the framework of the city and structures it. While marking the territory, it separates that which crosses it. At city scale, on maps, it is represented with a single line with a certain thickness due to its relevance, bearing meaning and generating spaces and spaces around it. The bearing is defined by its relative position crossing the territory in the most economic manner, linking and allowing mobility. The generating is unveiled with changes in scale, as this line displays other bearings (meaning and role).

The diagram shows the *Avinguda Diagonal* traversing the territory and linking two opposite corners and limits of the city, the mountains and the sea. These two contest<sup>22</sup> the *Avinguda Diagonal*, tensing, placing and defining it, providing specificity. It is a reflective limit, which places other lines and entities as well as supporting them. The diagrammatic analysis of the *Avinguda Diagonal* shows this as an entity and in isolation.

The historical map and current map of the area are overlaid, showing the complex manner in which the *Avinguda Diagonal* is reflective as well as contested. It generated and imposed new limits whilst being determined by existing relevant streets.

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<sup>22</sup> This term relates to the attribute of the limit of being “contested”. In this specific case it contests by creating tension, defining and placing the limit.



Fig. 2.2.63

Top: Figure Ground plan. Red ellipse denotes *L'Illa Diagonal*.

Fig. 2.2.64

Middle: Aerial Image. Red ellipse denotes *L'Illa Diagonal*.

Fig. 2.2.65

Bottom: Uses Map. Red ellipse denotes *L'Illa Diagonal*.

### ***Avinguda Diagonal* Creating a Discontinuity**

In its longitudinal section, *Avinguda Diagonal*<sup>23</sup> links and joins, whereas in its transversal section - notably where *L'illa Diagonal* is sited- it simultaneously creates an urban discontinuity that separates urban fabrics.

The superblock *L'illa Diagonal* is placed at the limit, in-between different types of urban fabric. Studying the map, to the north-east of *Avinguda Diagonal* and to the south-west of *L'illa Diagonal*, there is an urban fabric with a predominance of void over mass, characterised by individual buildings. The aerial map reveals that these buildings are complemented by open spaces that configure the block. However, to the south-east and south of *L'illa Diagonal*, the urban fabric is formed of perimeter blocks where the edges of the blocks define the street, and mass seems prevalent over void. Therefore, the superblock *L'illa Diagonal* mediates between two different fabrics with their own distinctive mass and void relationships, and *L'illa Diagonal* and *Avinguda Diagonal* become contested through this asymmetry.

This reading also correlates with associated land uses, where public uses such as retail and commercial (including hotels) are placed mainly on *Avinguda Diagonal*, in buildings with larger footprints and higher massing, in relation to streets around.

<sup>23</sup> The width of the *Avinguda Diagonal* varies along its length from between 50 to just over 100 metres. Cerdà originally conceived it as a 50 metre-wide boulevard with trees, even though the north-west section acquired a wider section varying between 80 and 100 metres in width. The newest section at the south-east has been implemented with the originally intended 50 metre width.

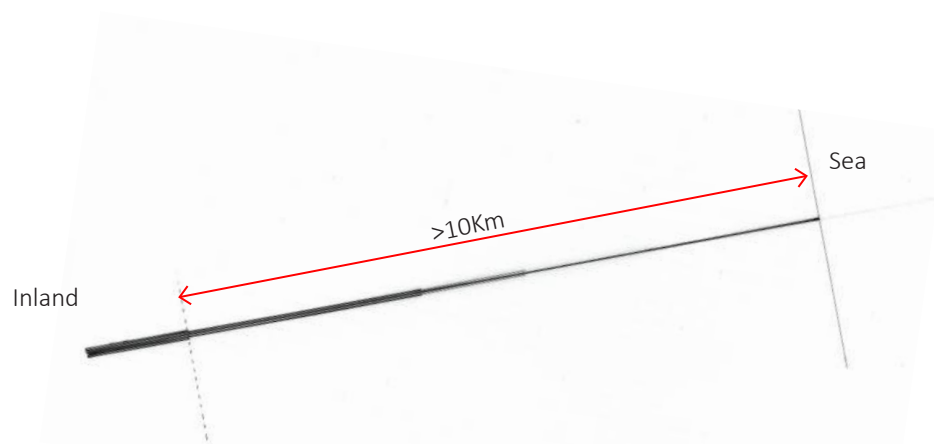


Fig. 2.2.66  
Diagrammatic representation of *Avinguda Diagonal* showing how its width changes along its length.

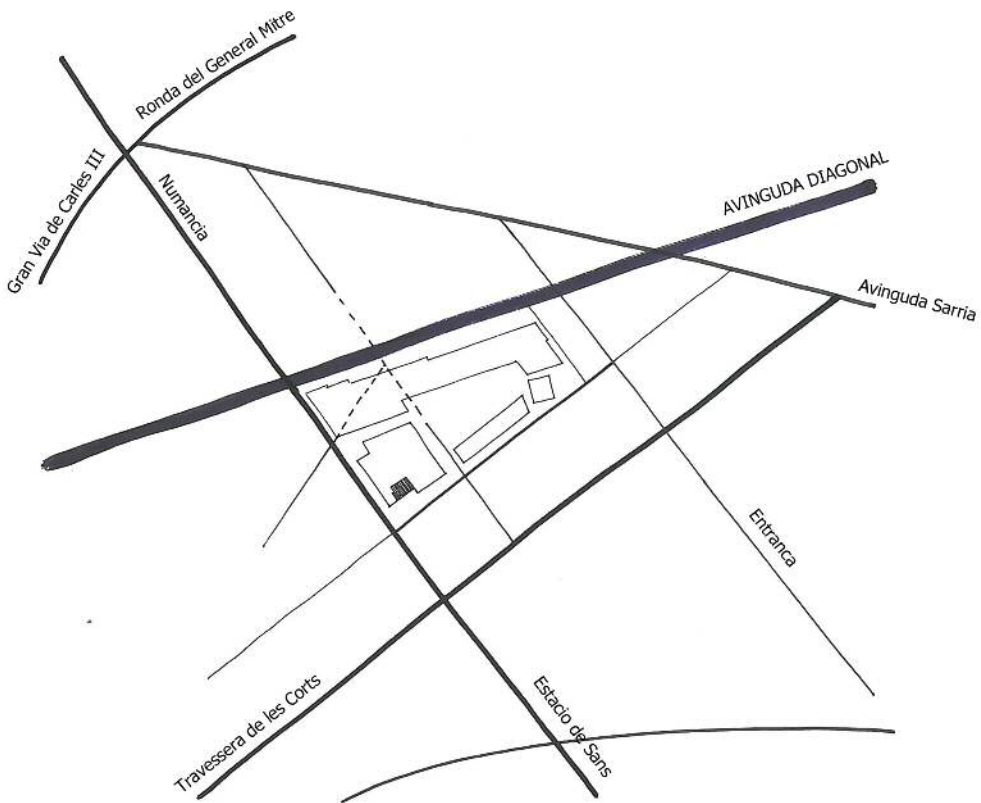


Fig. 2.2.67  
Placement of L'Illa Diagonal at district scale.

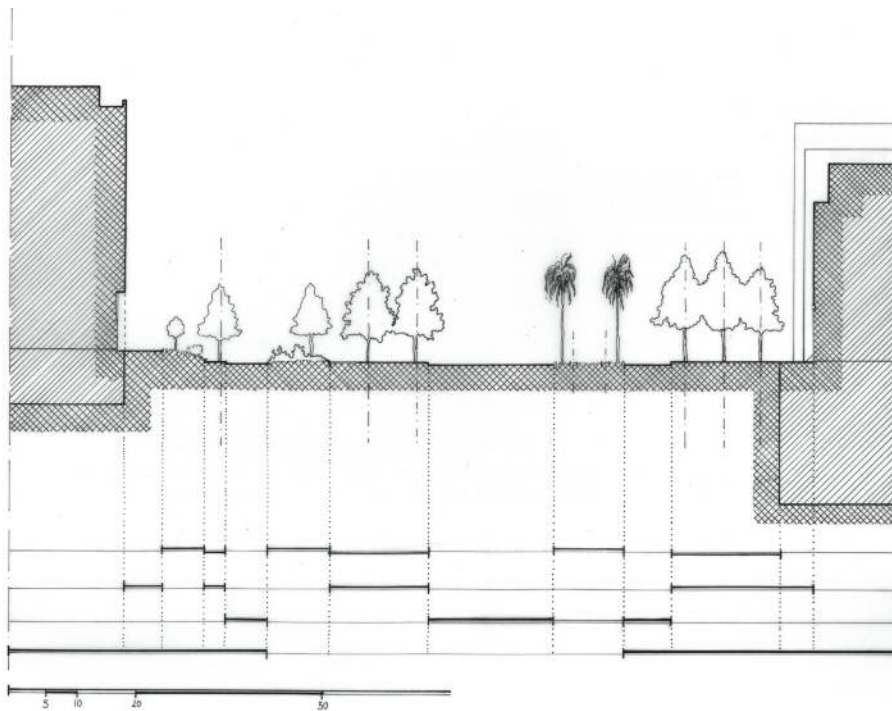


Fig. 2.2.68  
Section through Avinguda Diagonal at L'Illa Diagonal.

### ***Avinguda Diagonal as Limit i***

The *Avinguda Diagonal* presents as a line and mark in the territory that has made space for inhabitation. After changing scale, the line reveals a double limit and a strip with multiple lines with an asymmetry displayed in section seeking to mediate the discontinuity presented earlier. The change of scale has revealed multiple roles,<sup>24</sup> connecting, providing access to buildings, allowing for rapid movement but also for people's enjoyment and social spaces. These are juxtaposed, and, in many cases, one role compromises the other and they are displayed at different scales.

The *Avinguda* varies along its length and the degree of asymmetry and the specific number of lines defining the strips differ. It depends on how this is contested by the adjacent urban fabric and movement pattern as well as how the strips configuring the section are assembled. Here, the sections of *Avinguda Diagonal* at *L'Illa Diagonal* is presented alongside the original section of *Avinguda Diagonal* for comparison.

<sup>24</sup> This is due to the generative attribute of the limit related to the ability to be able to propose and define. It relates to the line able to propose and redefine itself intrinsic to bearing (carrying, meaning and symbol).

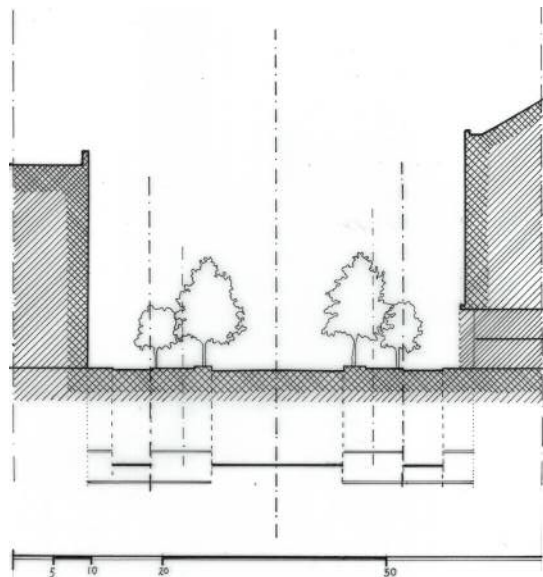


Fig. 2.2.69  
Typical section through original portion of *Avinguda Diagonal*.





***Avinguda Diagonal as Limit ii***

Limits here are reflective, which is to say that they determine the adjacent developments by characterising the size of plots, the configuration of land uses, heights of buildings and heights of entrances in accordance to the grandeur of the avenue. The adjacent developments, meanwhile, contest the *Avinguda Diagonal*, providing specificity to particular points along it. The edges and façades of the buildings facing the *Avinguda* have a visual impact that contribute to the character of a part of the *Avinguda*. The land uses of these buildings determine the flows of people and how the pavements of the *Avinguda* are used.

The photographs show the length and heights of the buildings that provide enclosure to the *Avinguda* and how landscape elements play a key role. On the one hand, the landscape defines space by offering the enclosure to the places that the pedestrian and cyclist inhabit, and from where they define the limits of the avenue. On the other hand, for the driver, the vegetation obscures the buildings, only revealing them in the far distance, displaying a rim that presents and frames the sky. The lines of this limit are reconfigured as the inhabitant moves, revealing how the limits fluctuate and become ambiguous. The avenue experienced as limit becomes an in-between here with its fluctuating limits.

*Fig. 2.2.70*

Top: Looking south down *Carrer del Prat d'en Rull*, which is the continuation of Linkage 1.

*Fig. 2.2.71*

Middle: Looking north along *Avinguda Diagonal* showing the buildings opposite *L'Illa Diagonal*.

*Fig. 2.2.72*

Bottom: Looking north along *Avinguda Diagonal*, showing the *L'Illa Diagonal* superblock on the left.



### **Multiscalar *Avinguda Diagonal***

The *Avinguda Diagonal* as limit reveals itself differently at different scales, varying as its attributes vary. At the city scale, it is revealed as a mark on the territory that links. Then, it reveals that the line changes along separating what it crosses. Therefore, the limit has displayed the duality of *limen* and *limes*, as a boundary separating and as a threshold linking. A closer look reveals that it is affected by, and affects, the territories that it has crossed. At the district-neighbourhood scale, the limit has made space for, mediates between, and shows as an inhabitable strip. While, at the building scale, the avenue is an in-between defined by multiple lines and limits presented in the section of the avenue in 'Avinguda Diagonal as Limit i'. The inhabitant and their position determine the experience of the avenue. The limit fluctuates as it changes each time we change position within the limit. The limit is re-defined, re-created. The limit is multifaceted taking different roles and delineation at different scales.



Fig. 2.2.73

Top: Aerial Map, Barcelona city scale.

Fig. 2.2.74

Middle Upper: Aerial Map, Barcelona city district scale.

Fig. 2.2.75

Middle Lower: Aerial Map, Barcelona district-neighbourhood scale.

Fig. 2.2.76

Bottom: Aerial Map, Barcelona building scale.

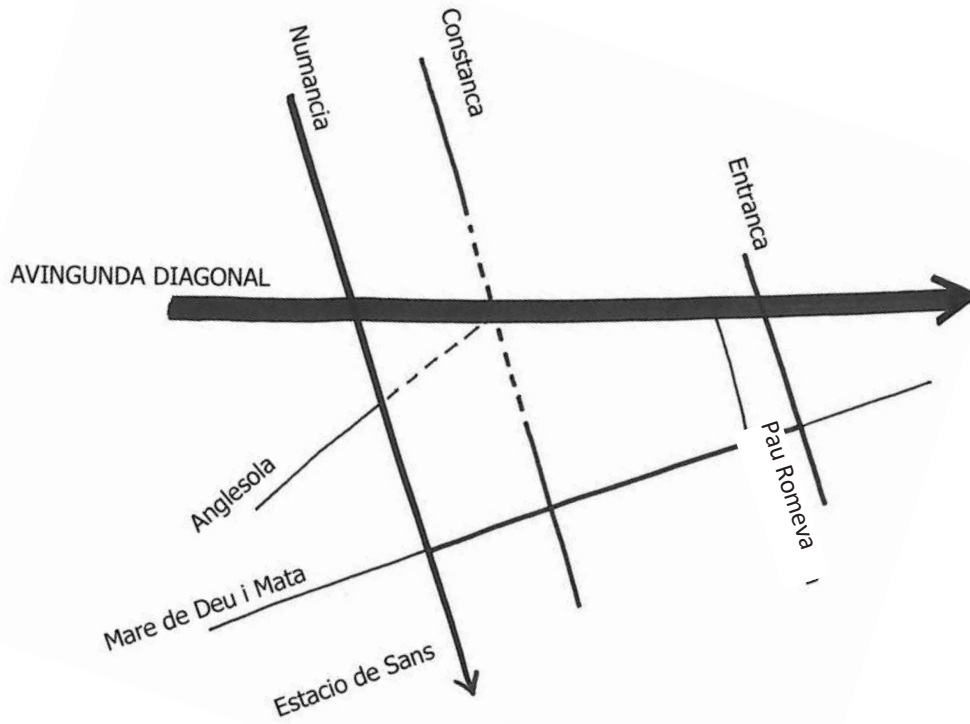


Fig. 2.2.77  
Placement of *L'illa Diagonal* at neighbourhood scale.

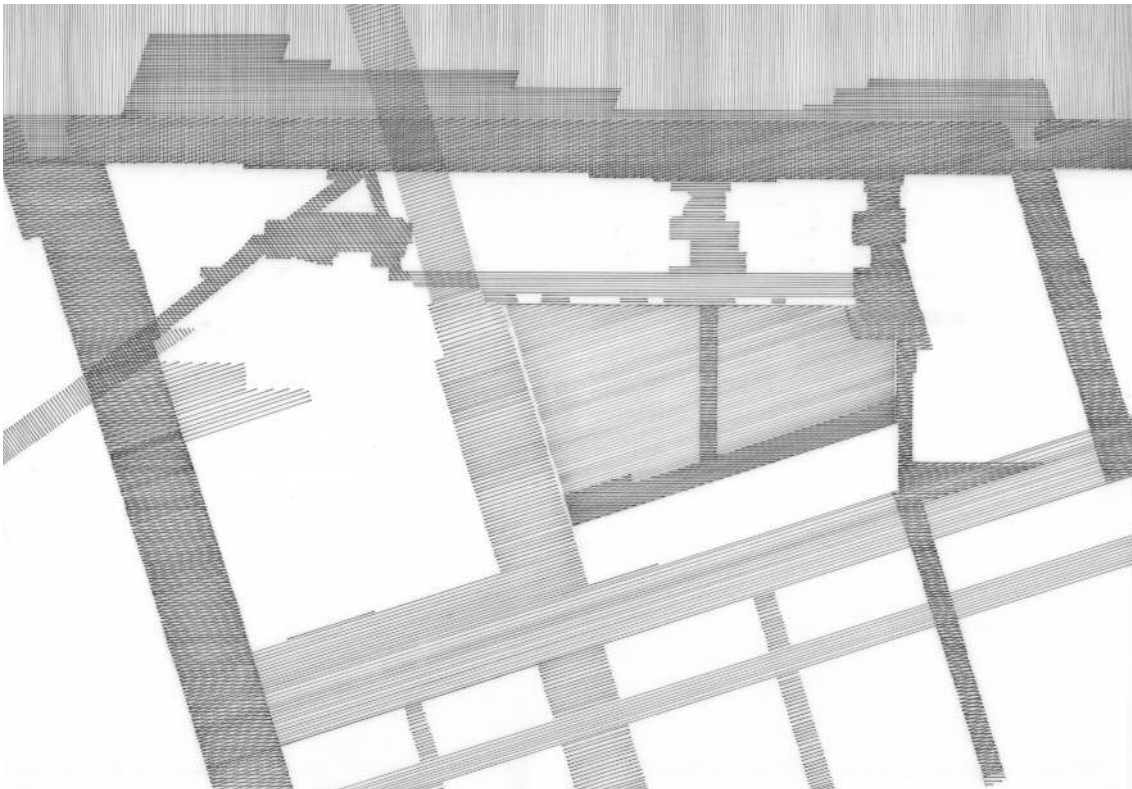


Fig. 2.2.78  
Overlay of directional hatches, representing directions of movement.

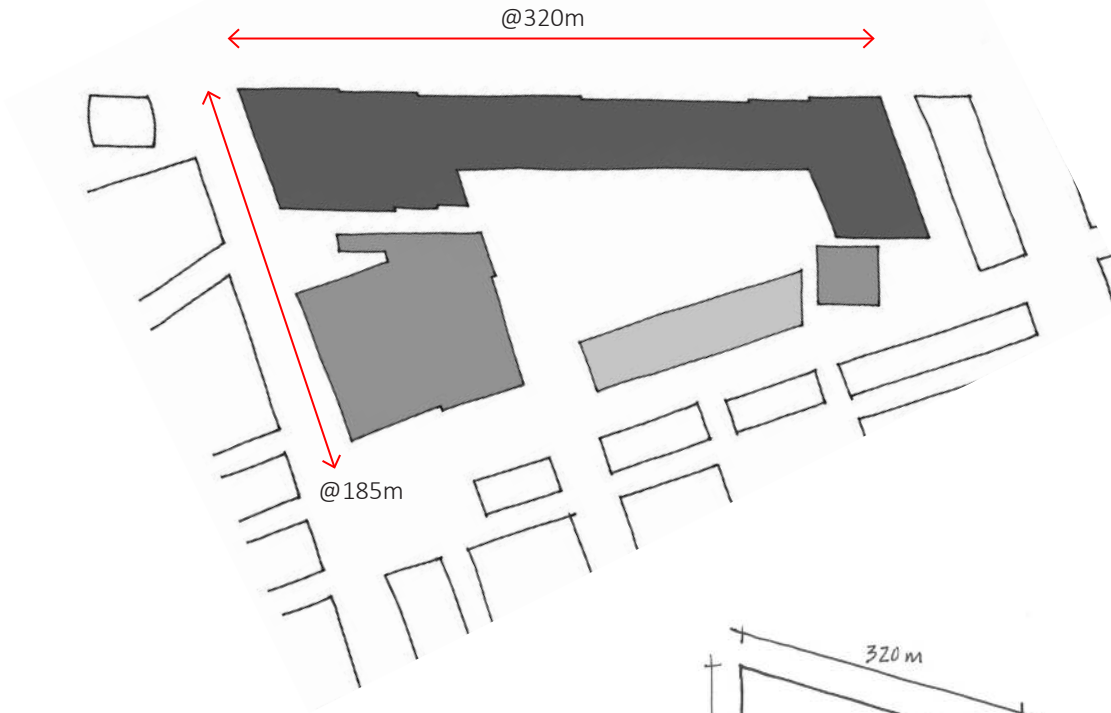
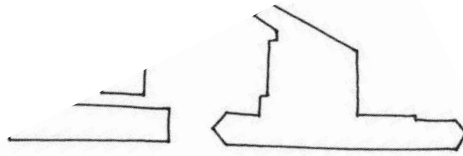


### Locating the Superblock

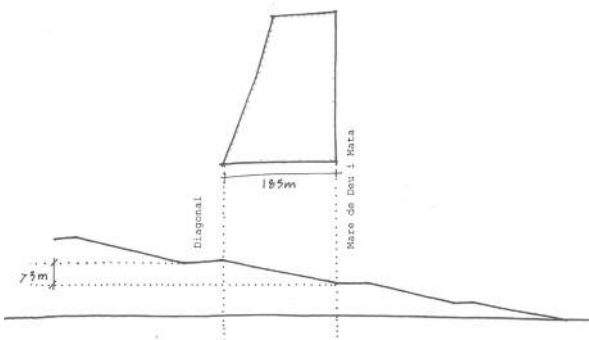
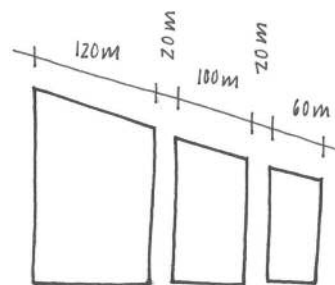
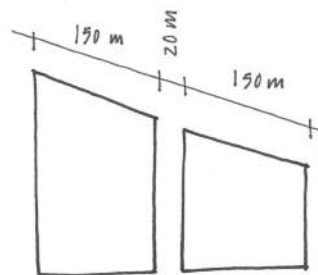
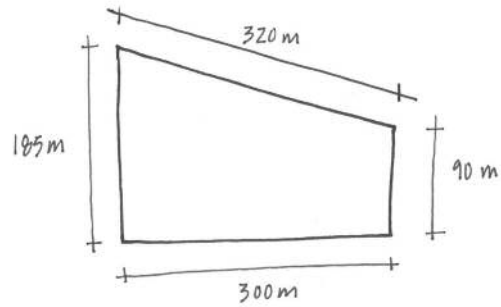
The *L'Illa Diagonal* superblock is delimited by *Avinguda Diagonal*, *Carrer Numància*, *Carrer de Déu I Mata* and *Carrer de Pau Romeva*, and is traversed by *Carrer Anglesola* and *Carrer Constança*, both linking and separating the domains of the large public scale of the *Avinguda Diagonal*, and the neighbourhood behind.

The diagram locating the superblock in its context of single lines shows how, on one side, it receives the neighbourhood streets and two of them cross the superblock.

The diagram of the superblock is thus shown to be imagined as the result of considering the directions of the paths that affect it. It also includes the projected shadow of *L'Illa Diagonal* onto the avenue, as this seems to belong to the building. The superblock is contested by the direction of the streets of the neighbourhood that reach the *Avinguda Diagonal* at some points and cross it in the underpass of *Carrer Constança*. The *Avinguda Diagonal* takes two directions representing the avenue itself, and its frontage, and these penetrate the superblock in an ordered manner, fluctuating at different points in the inner superblock.



- Shopping Mall, Supermarket, Market, Office, Hotel, Parking
- Educational, Leisure
- Hotel



### Composition of the Superblock

The configuration of the superblock is greatly influenced by its immediate surroundings, and the scales that it needs to mediate between, at each limit of the superblock. The *Avinguda Diagonal* is fronted with a single building that is over 300 metres long while *Carrer Déu I Mata* is delineated with three buildings of different widths, correlating with the blocks opposite without simply mimicking them. The superblock could be designed following geometric principles dividing it into two or three equal sections as shown on the diagram opposite but this was not the case as its configuration directly relates to its surroundings.

The configuration of the superblock follows the same approach in plan and section. At the *Avinguda Diagonal*, the building frontage is given considerable height and depth whereas these are more conservative at the neighbourhood side. It takes also advantage of the change in ground floor level between the avenue and the neighbourhood.

Thus, the superblock is contested by its surroundings showing a double asymmetry. It seeks a balance between the separation of the *Avinguda Diagonal* from the neighbourhood in order to protect its sense of belonging and character. It also takes advantage of its privileged location adjacent to the avenue, a part of the city providing a high level of accessibility and offering opportunities to its residents.

*Fig. 2.2.79*

Top: Spatial configuration and uses of the superblock.

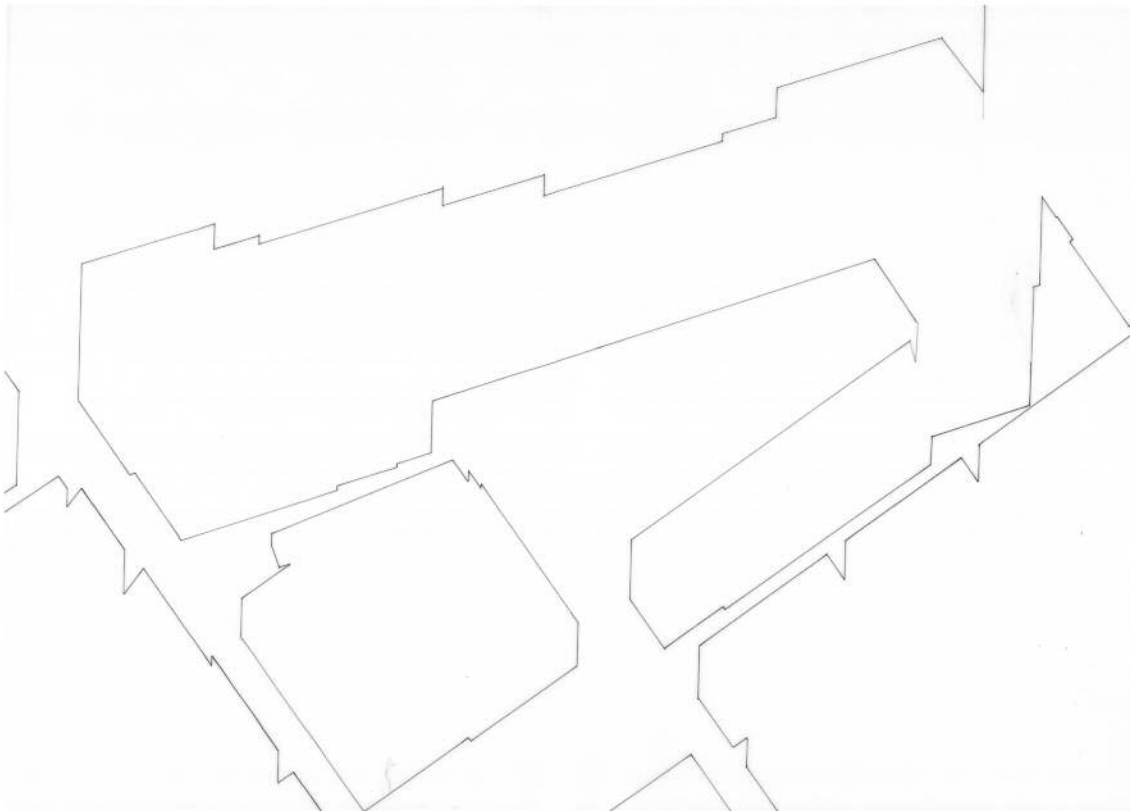
*Fig. 2.2.80*

Bottom left: Change of level between *Avinguda Diagonal* and neighbourhood.

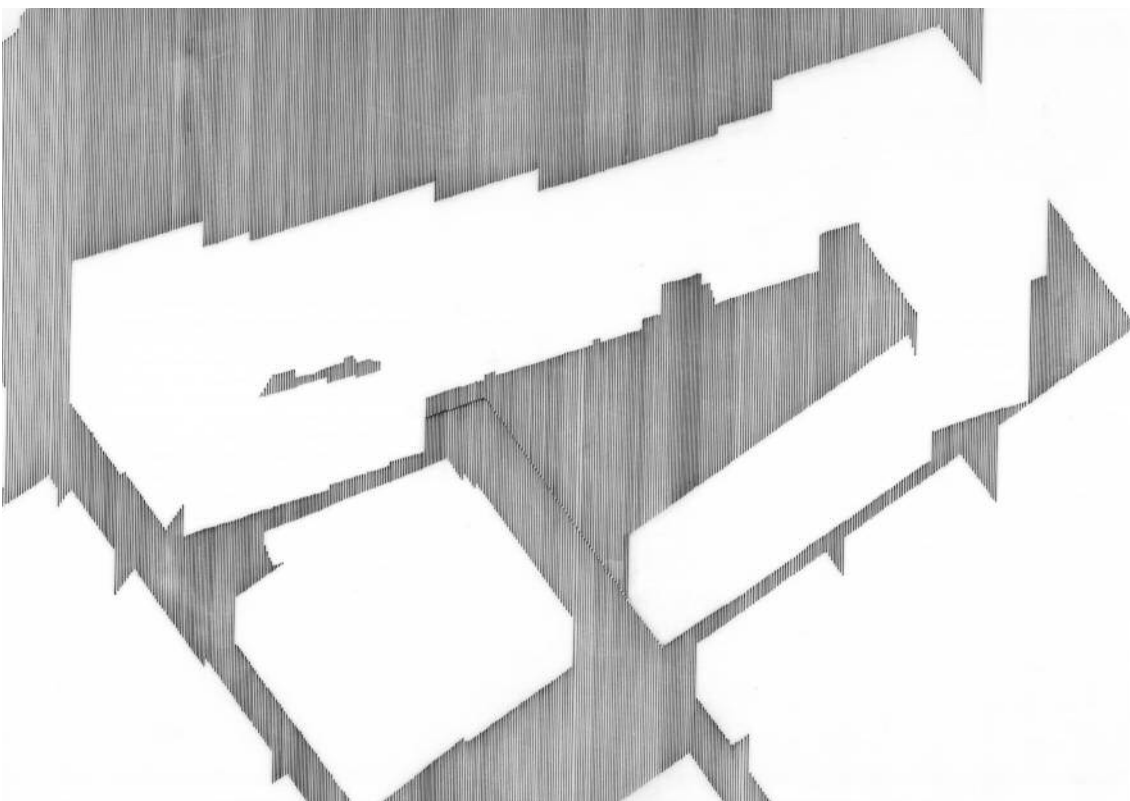
*Fig. 2.2.81*

Bottom right: Measurement of the superblock (top) and possible strategies for subdivision.





*Fig. 2.2.82*  
Delineation of buildings with their associated shadows.



*Fig. 2.2.83*  
Figure-ground diagram of the buildings with their associated shadows.



### Mass-shadow Versus Void-mass of the Superblock

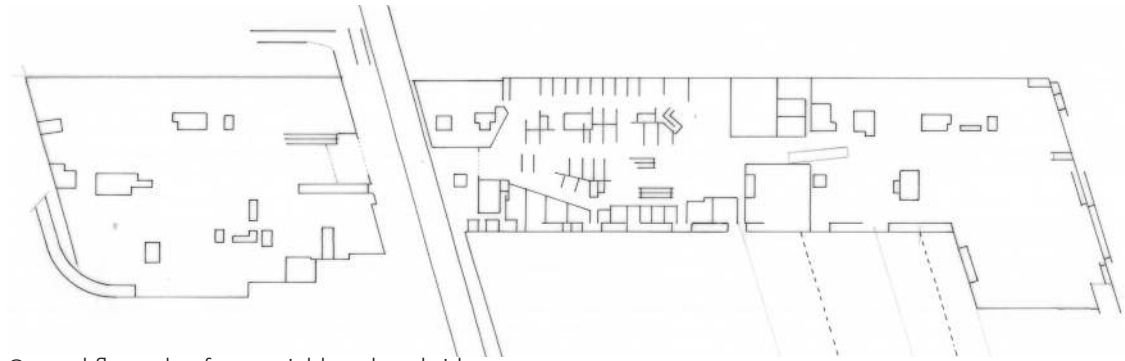
The superblock has a very similar orientation to the *Eixample* (Cerdà grid). Therefore, the shadows of the buildings keep certain synergies with the ones in the *Eixample*. The façade on *Avinguda Diagonal* receives sun only early in the morning and in the late hours of the afternoon part of the year. The façade on *Carrer de Déu I Mata* and the inner façade of the building at the *Avinguda* receive more sun. Shadows are associated with the element that creates them, experienced as an extension of the façade, and soften the façade, as a limit that separates. The shadows change throughout the day and over the seasons; stronger on sunny bright days.

The photograph of *L'Illa Diagonal* taken on an early spring morning shows the shadow of the building cast onto the *Avinguda Diagonal*, defining a zone that belongs to the building. The top diagram delineates the mass and shadow as an entity at noon in summer. The bottom diagram presents a figure-ground version of the line diagram above. This delineation contrasts with the delineation of the Cartesian plan, revealing a continuity of the sunlit areas from the neighbourhood into the inner part of the superblock. In contrast, the avenue is faced by the mass and shade of *L'Illa Diagonal* that announces the change of balance between void and mass of the urban fabric, and faces the light of the *Avinguda Diagonal*.

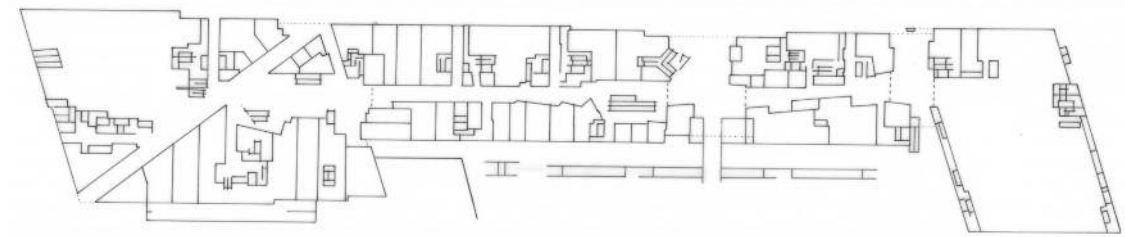


Fig. 2.2.84

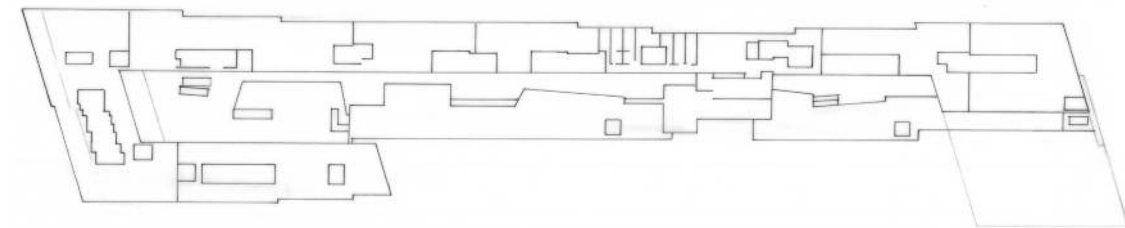
Photographs of *L'Illa Diagonal* showing shadows cast on the façade and street.



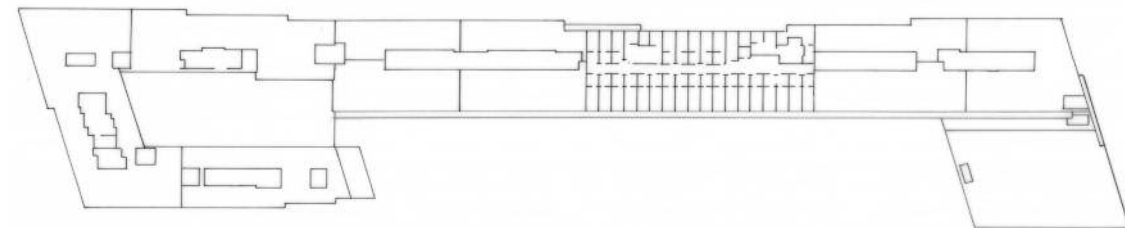
Ground floor plan from neighbourhood side.



Ground floor plan from *Avinguda* side.



Second floor plan.



Fourth floor plan.

*Fig. 2.2.85*  
Diagrammatic Floor Plans of *L'Illa Diagonal* traced from 1:500 scale plans.



### Ground Floor Versus Upper Floor Plans of the Superblock

In a subtle way, the mass-shadow and void-light diagrams announce the differences between the front of *L'illa Diagonal* (facing *Avinguda Diagonal*) and the inner façades (to the inside open space of the superblock), evident in a comparison of the roof plan and ground floor plan of *L'illa Diagonal*.

The ground floor plan presents a perforated layout with a degree of permeability across and through the building. This contrasts with the hermetic delineation of the upper floors, defining a clear inside and outside. The two plans present an ambiguity and difference in their response to the perimeter and limit. The plans are diagrams, traced over available plans where the walls are single lines that separate.<sup>25</sup>

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<sup>25</sup> Moneo, José Rafael and Manuel de Solà-Morales, 'Equilibrio de Masas: Manzana Diagonal', *Arquitectura Viva*, 35 (March-April 1994), pp.50-57; 'Rafael Moneo 1990-1994' *Croquis*, 64 (1994), pp.102-119; Opening, *AV Monografías*, 36 (1992) pp.62-65.



Fig. 2.2.86  
View of L'illa Diagonal massing as viewed from Avinguda Diagonal.



Fig. 2.2.87  
Photos comparing the front (left) and rear (right) facades of L'illa Diagonal.

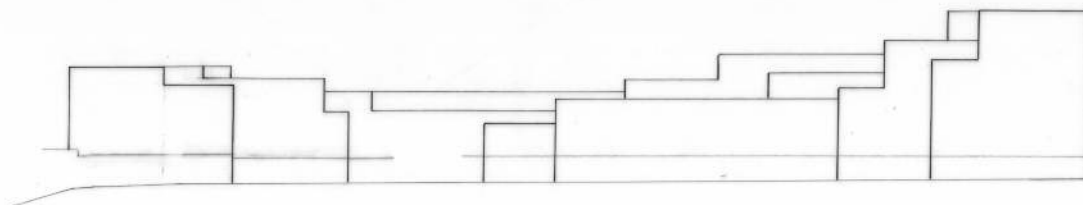


Fig. 2.2.88  
Diagram of the delineation of the folding of the front facade.

## *L'Illa Diagonal*

### **Superblock Meeting the *Avinguda Diagonal***

This is the place where the avenue and the superblock start and end, creating a double limit. This building is contested by the neighbourhood and the *Avinguda Diagonal*, each defining its own, and the others, characteristics.<sup>26</sup>

The façade of the building can be read as a skin gently folding, creating recesses whilst varying its height. It reaches its highest point at the intersection with *Carrer Numància* and its lowest in the middle section. The folding skin delineates and presents the skyline, and it is seen from the middle of the avenue as well as from far away. This sits on the podium which adopts the same outline as the upper body, both separating and linking the upper body from the floor.

<sup>26</sup> This defining is related to the reflectiveness of this limit on the *Avinguda Diagonal* but also on the superblock.



Fig. 2.2.89  
View along *Avinguda Diagonal* with pavement "belonging" to both building and avenue.

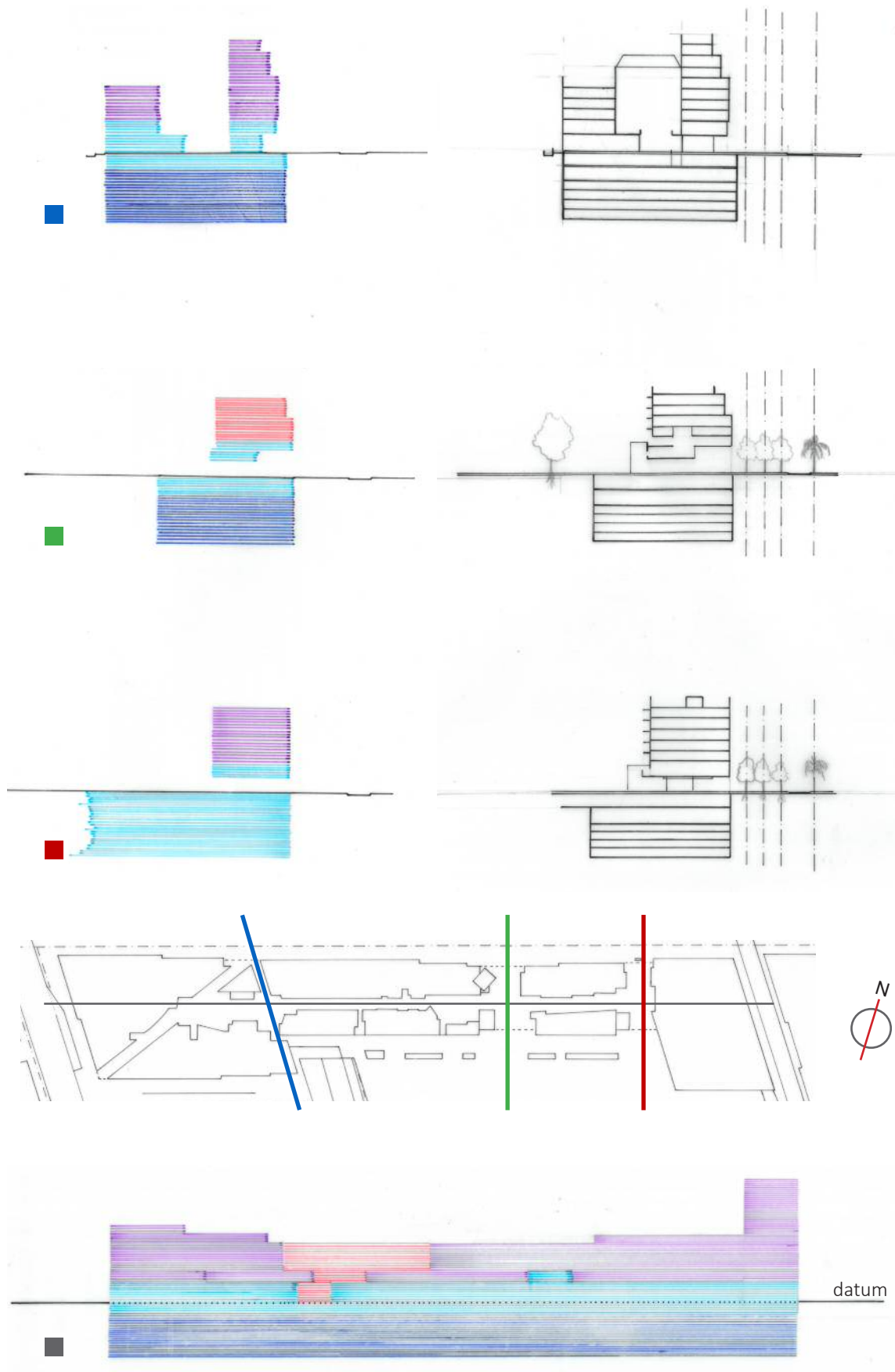


Fig. 2.2.90  
Diagrammatic sections of *L'Illa Diagonal* and amalgamation of uses and datum.

### Composition of *L'Illa Diagonal*

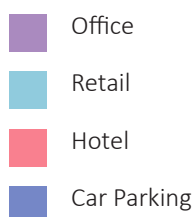
Due to the delineation of its skin, the building presents itself in an imposing and an unambiguous manner to the *Avinguda Diagonal*. Nonetheless, the mixed program of the building- office space, shopping centre, supermarket, market, car parking and one of the hotels sitting in the superblock<sup>27</sup>- is spatially disposed so that allows for easy access and higher connectivity with the public domain for the more public uses<sup>28</sup> Hence, these are located within the podium and the first underground level relative to the avenue, and on ground floor relative to the neighbourhood, as shown in the diagrammatic sections opposite.

The ground floor on *Avinguda Diagonal* is the “datum” shown as a mark on the longitudinal section positioning an above and a below. The datum is the line from which elements are located and measured within the building and this establishes a symmetry in relation to accommodating the programme above and below.

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<sup>27</sup> This program attracts large numbers of people and different users making this building public in the way it is used and an intense inhabited strip within the superblock.

<sup>28</sup> Public uses refer to land uses that are accessible to all public even if these are located in private ownership. These are the shopping centre, market and supermarket.



*Fig. 2.2.91*  
Key for Sections opposite.



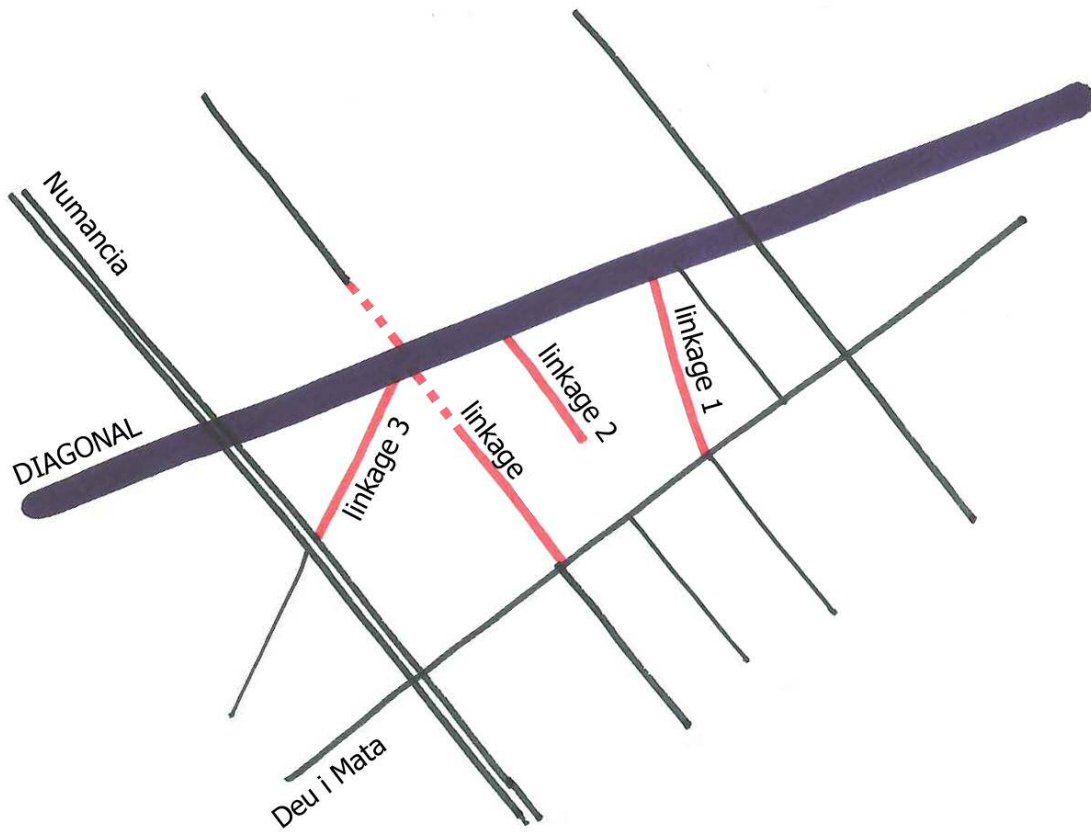


Fig. 2.2.92  
Linkage-Entrances located by street pattern.

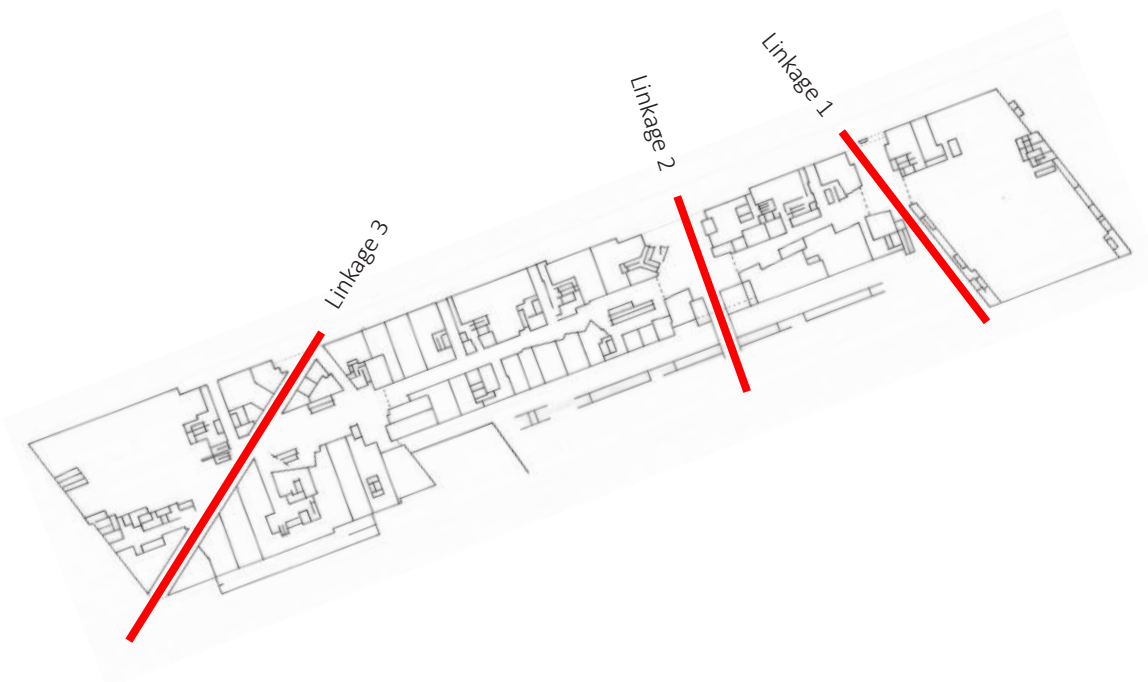
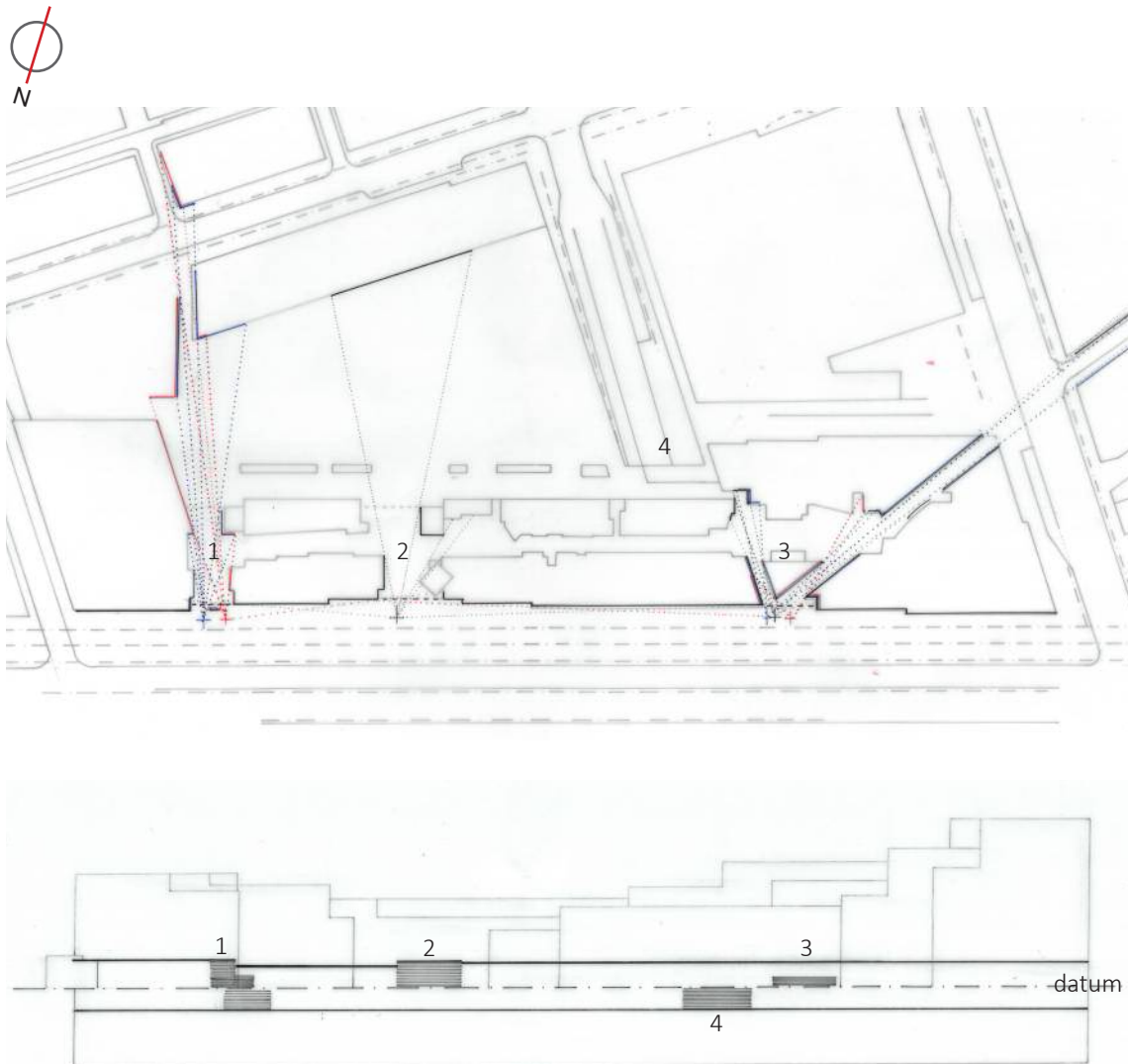


Fig. 2.2.93  
Linkage-Entrances overlaid onto ground floor plan of L'Illa Diagonal.

**Locating *L'Illa Diagonal***

The dark podium contains three large openings like gigantic portals, correlating with the accesses to the shopping centre and the inner open space of the block. Two of these openings are extensions of streets from the residential areas that cross *L'Illa Diagonal* and disappear once they meet the *Avinguda*. Linkage 1 is the extension of *Carrer de l'Ecuador* and linkage 3 of *Carrer Angesola* that existed in old maps. Linkage 2 also crosses *L'Illa Diagonal*, providing access to the shopping centre and to the inner open space. There is effectively also a fourth linkage underground in relation to the avenue, providing access to the market and supermarket that is both vehicular and for pedestrians called *Carrer de Constança*, which is an extension of *Carrer de Nicaragua* that links to *Carrer Caravel·la la Nina*.



*Fig. 2.2.93*  
The Linkage-Entrances (numbered) in plan (top) and located within the podium and by the datum (bottom).

### The Linkage-Entrances

The portals for the linkage-entrances 1 and 3 sit within the podium while that for linkage-entrance 2 protrudes slightly from it. These portals are dimensioned to have presence within the skin of the building and so that we experience them halfway between entrances and linkages. A linkage as presented with the *Avinguda Diagonal* connects in its longitudinal dimension whereas an entrance associated to a threshold presents a liminal space mediating the two worlds that both links and separates.

The points of access to the office space and the hotel to the upper floors take place from the avenue and these are positioned within the podium. The points of access to the office space are discrete, yet in section an interface is provided transitioning from the public to the private realm.

The podium is measured to accommodate these entrances, taking great care with the treatment of the interfaces in order to make the movement between domains easy and natural. However, the podium is also the public part of the building as it is the area the pedestrian relates to directly, defining the “here” and positioning the upper part of the building as “there”.

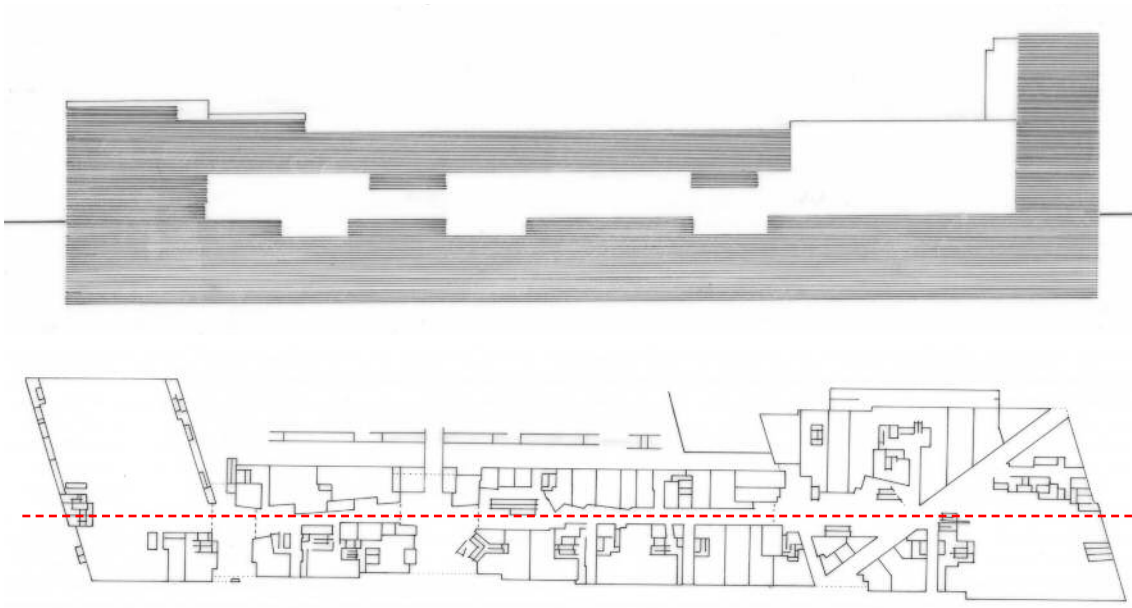


Fig. 2.2.94  
Long section.

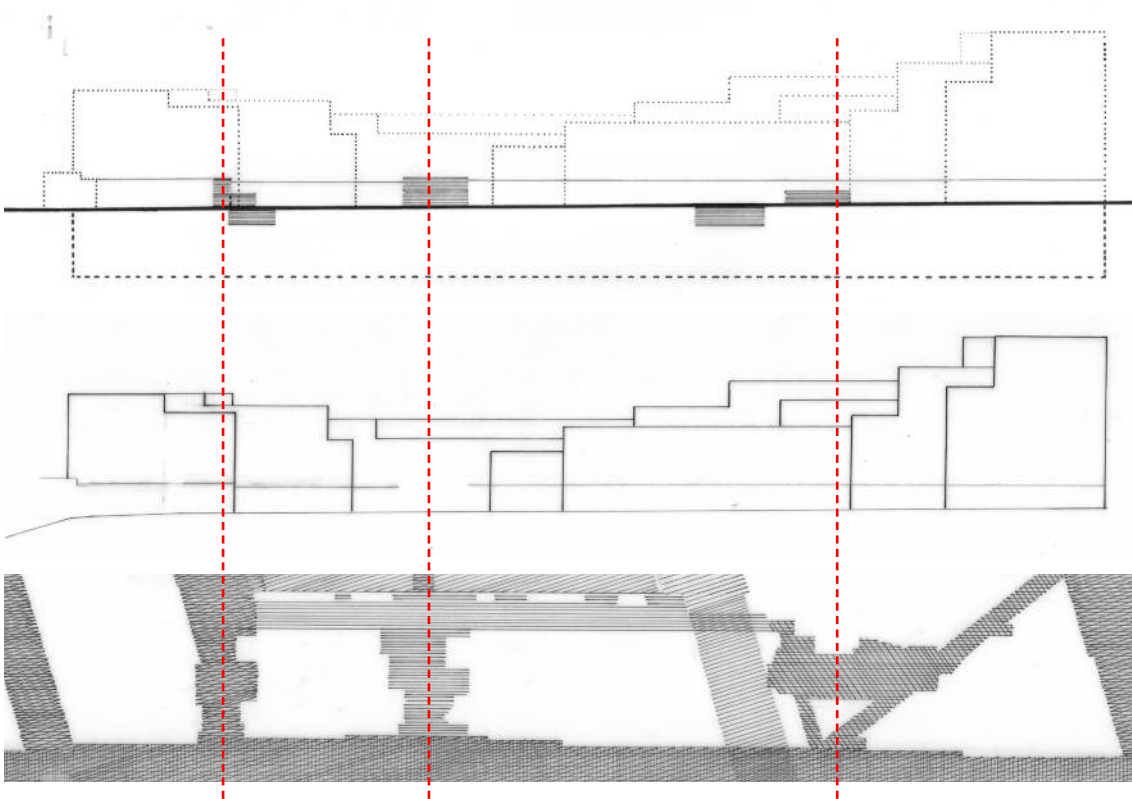


Fig. 2.2.95  
Short sections.



***L'Illa Diagonal Voids***

A section cut through *L'Illa Diagonal* reveals a void where the hinge of the building sits. This discloses the building as a limit; an inhabitable strip with a double limit which simultaneously connects (linkages-entrances, programme) and separates (skin), is contested and reflective, asymmetrical and topological.

The ground floor plan – a horizontal cut- also reveals the three linkages with their own hinges placing the building within the wider context. Henceforth, the study will focus on the delineation of the linkages-entrances approached from *Avinguda Diagonal* and concentrate on the limit between *L'Illa Diagonal* at the entry points and *Avinguda Diagonal*.

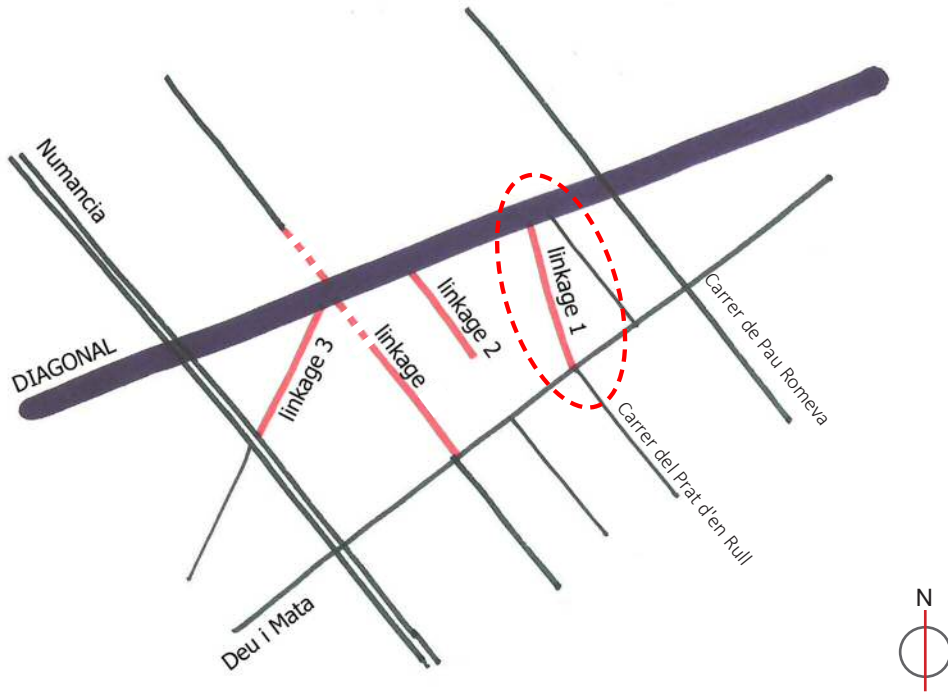


Fig. 2.2.96  
Location of Linkage-Entrance 1 highlighted.

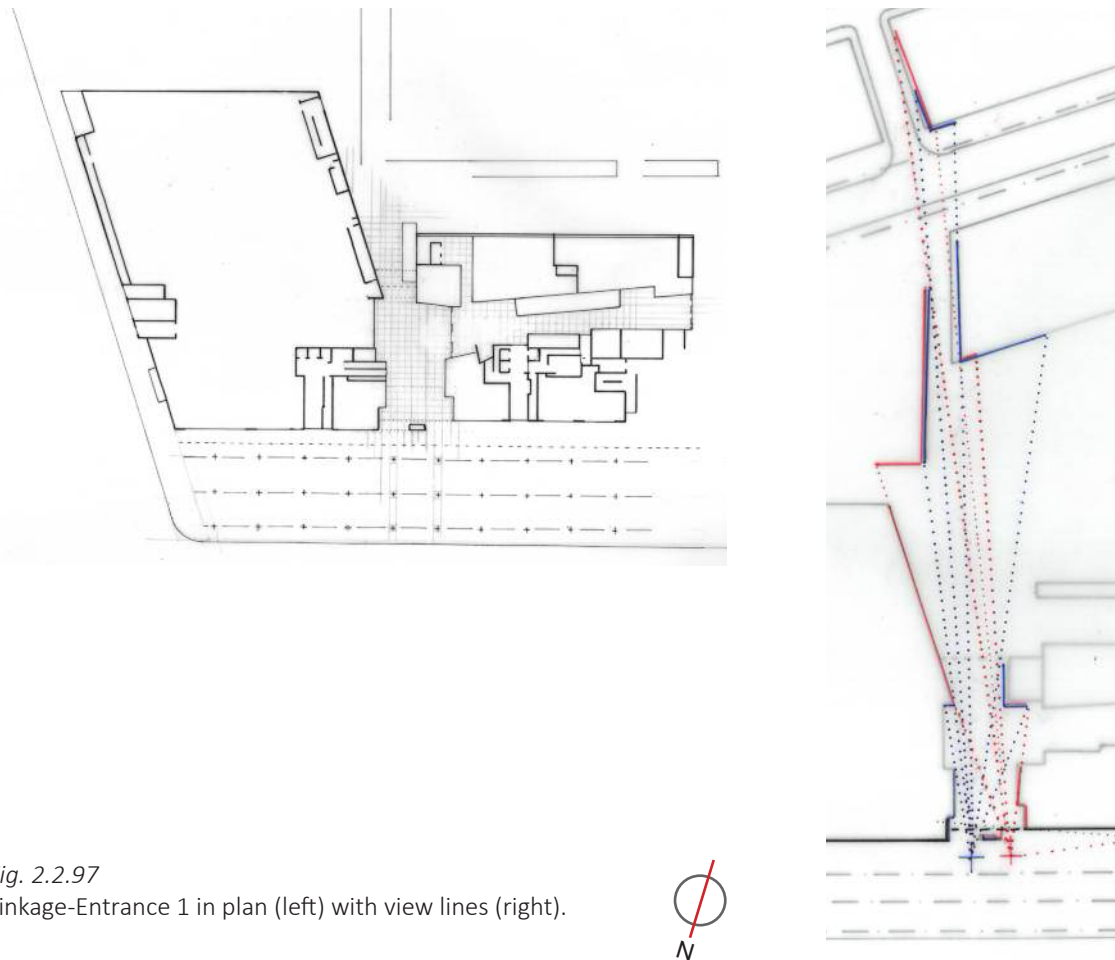


Fig. 2.2.97  
Linkage-Entrance 1 in plan (left) with view lines (right).

## Linkages - Entrances 1

### Locating Linkage-Entrance 1

The linkage-entrance 1 is the continuation of *Carrer del Prat d'en Rull* (itself a continuation of *Carrer de l'Equador*) placed nearer to *Carrer de Pau Romeva*. The linkage from the residential area crosses *L'Illa Diagonal* meeting the *Avinguda Diagonal*. The entrance into *L'Illa Diagonal* sits within this intersection and within the dark podium of the building coinciding with one of the folds of the skin of the building. The plan reveals the linkage penetrating the building and disappearing or blending with the pavement alongside the building. The entrance to the building and the beginning of the linkage seem to be at the line of the façade.

Nonetheless, the photographs taken from the pavement of the *Avinguda* disclose a complex entry dominated by the folding in the way of the opening and making the skin of the building to take presence. The folding is penetrated by the linkage without disappearing. Therefore, there is a tension between the linkage allowing movement through and the skin of the building stops the movement. This limit, opening and entrance to *L'Illa Diagonal* is contested by the skin of the building designed in order to relate to the avenue and different scales and the linkage connecting to the residential area which has located it. Simultaneously this is reflective, compromising the façade of the building.

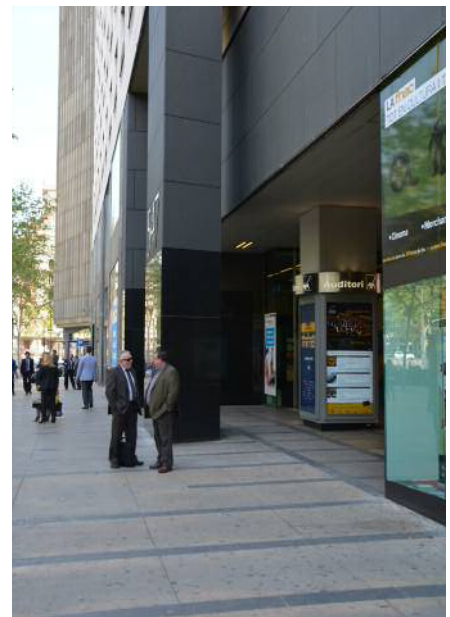


Fig. 2.2.98  
Views of Linkage-Entrance 1 from *Avinguda Diagonal*.



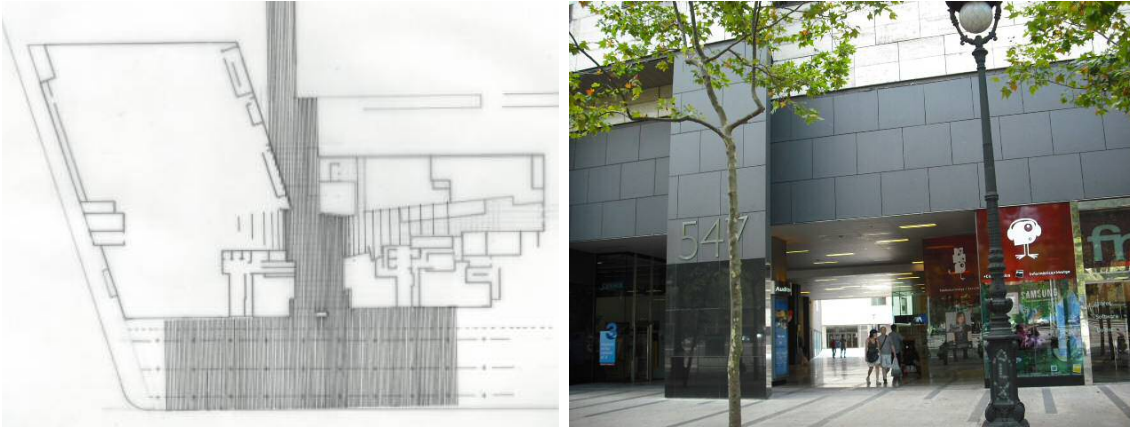


Fig. 2.2.99  
Linkage-Entrance 1 in plan (left) read alongside view from *Avinguda Diagonal*.

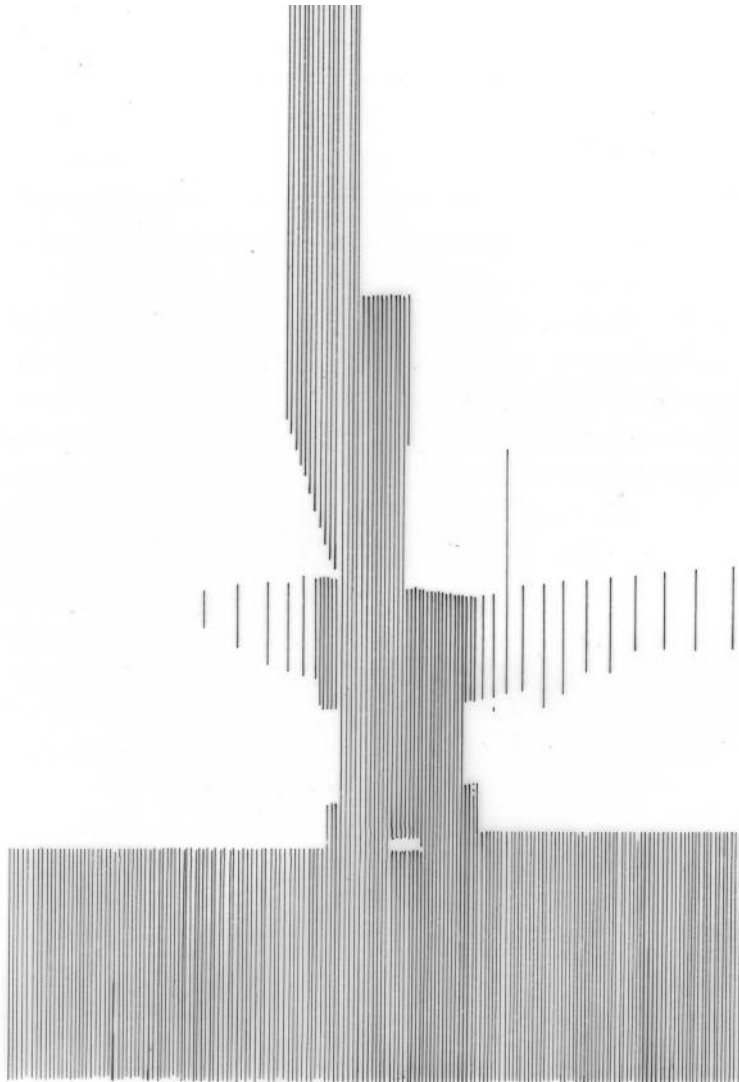


Fig. 2.2.100  
Hatched plan showing space made for the limit of the linkage.



### Configuring Linkage-Entrance 1 i

The plan and section highlight the continuity between the inside and outside. The plan unveils the wide and open pavement against the narrow linkage intersecting the building. In this intersection with the building the linkage has elaborated asymmetrical limits compromised as well as enriched by the intersection with the shopping centre. The section reveals the enclosure the trees provide to the pavement area, delineating it from the building, and how the linkage penetrates squeezing through the building ending with an opening to the sky.

The diagram of hatched lines maps the linkage as a positive space revealing the unobstructed space. The contour that this delineates takes *presence*, fading when intersecting with the inner arcade of the shopping centre as it feels private and automatic doors are crossed.

The plan and section (following page) reveal that the linkage has its own limits at each side whilst the entrance is another limit intersecting with the linkage making this a portal. A portal where two domains meet and, in this case, it may be three: private, public and neighbourhood domains.



Fig. 2.2.101  
View southwards towards Linkage-Entrance 1.

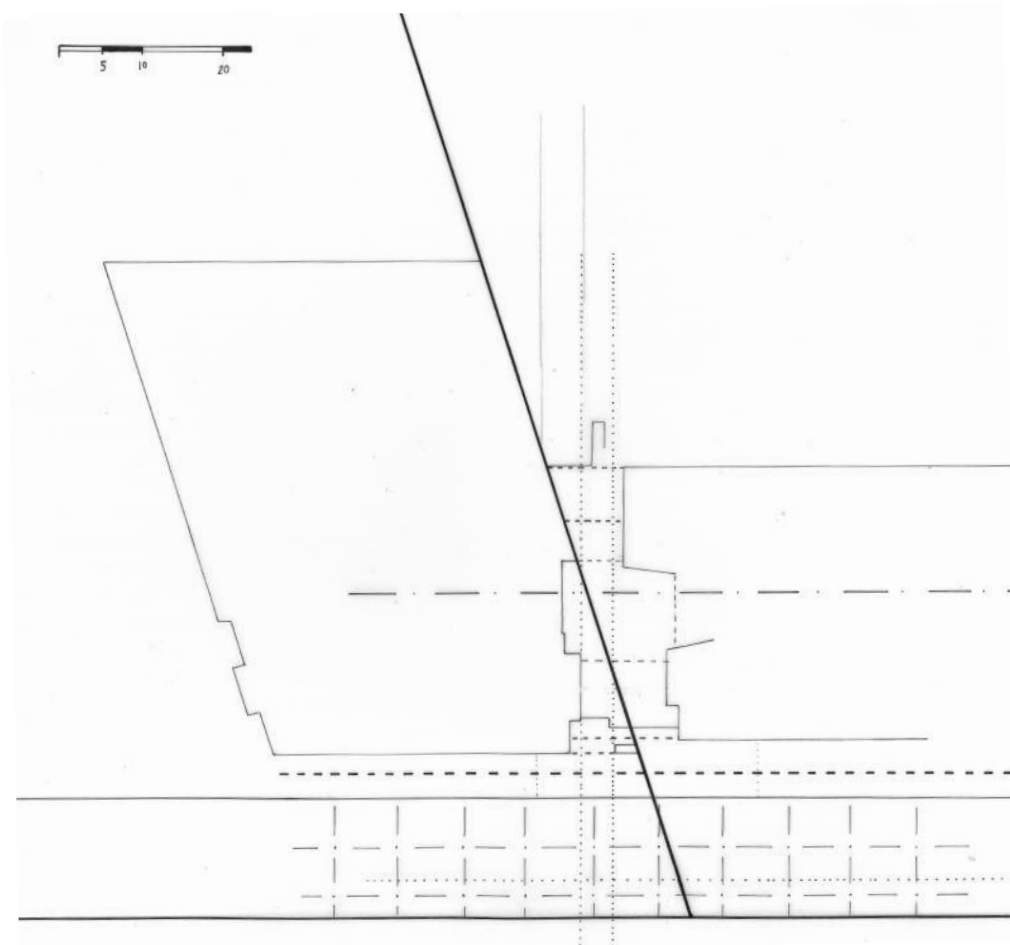


Fig. 2.2.102  
Linkage-Entrance 1 in plan with generative lines.



### Configuring Linkage-Entrance 1 ii

Multiple lines define this limit. The façade of the building on *Avinguda Diagonal* with its folds presents a fragmented line that separates the inside from the outside. At the entrance, the façade presents a double line as the fold overlaps. The outer line of the fold is defined by the direction of the grid of the residential area. The trees on the pavement are placed on a grid delineating two distinct directions and lines. The kerb of the pavement reveals another clear line.

Dotted or dashed lines register on the plan the changes that are revealed in section and surely define our experience. This is the case with the conventional red line that delineates the plot that defines public from private as revealed in section, and which does not coincide either with the façade above ground to the avenue, or with the inner open space, the park. There are also the lines representing the double opening and the change of the floor to ceiling height. However, the plan does reveal the delineation of the floor finishes that is missed in section.

The representation of this entrance reveals a fine balance between allowing movement through, as presented on the previous page, and the resistance represented with the lines transversal to the flows. It results in a gradation with an inherent tension due to the dichotomy of allowing and restricting (separating and joining) while displaying an asymmetry and a certain degree of ambiguity.

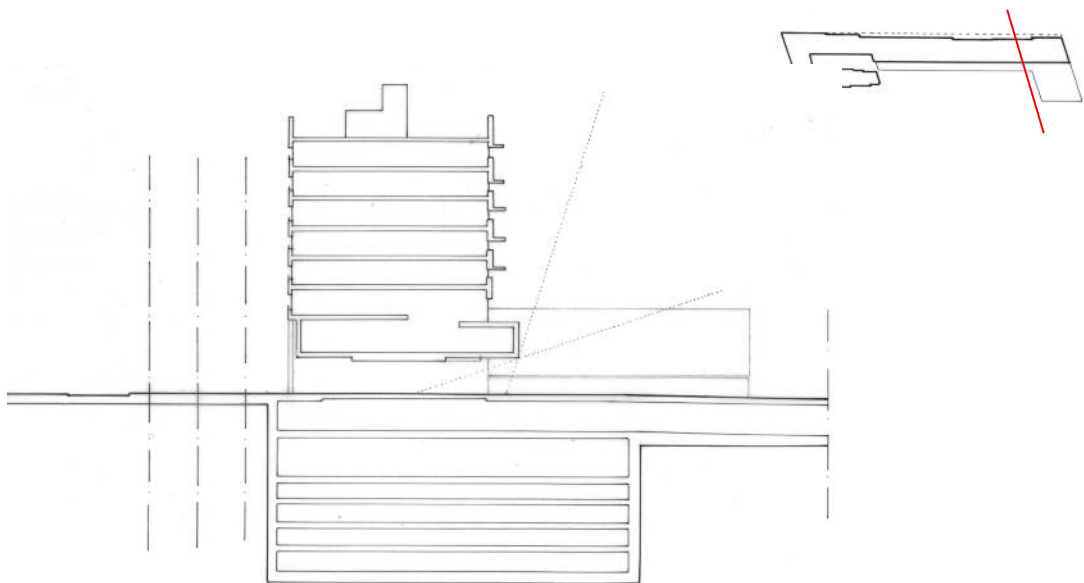


Fig. 2.2.103  
Section through *L'illa Diagonal* at Linkage-Entrance 1.

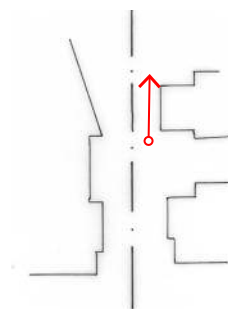
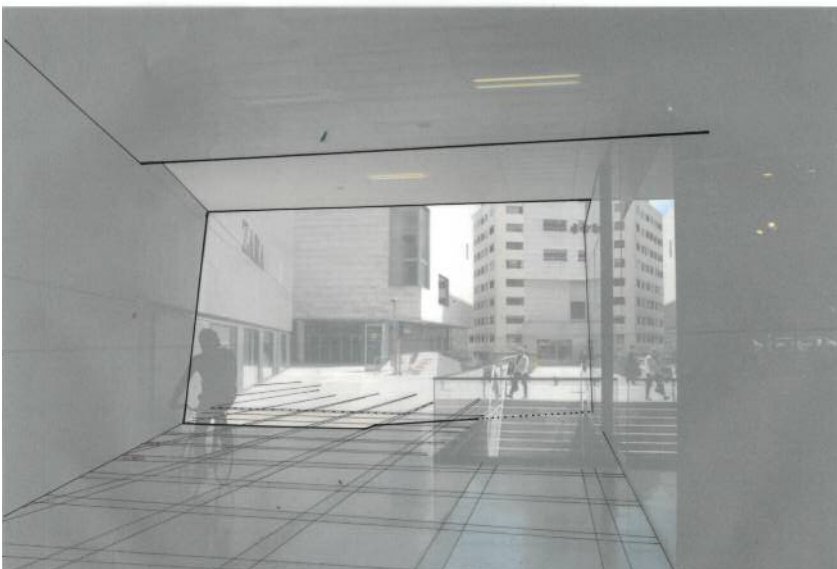
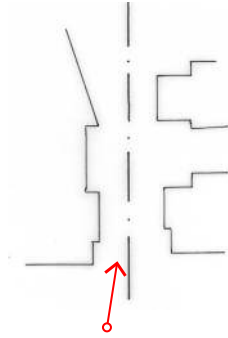


Fig. 2.2.104  
Serial view through Linkage-Entrance 1.

### Framing in Linkage-Entrance 1 i

The double opening at the folding frames and re-frames the linkage finally capturing and framing the light from the other side of this building that is also an in-between. The outer opening matches the height of the podium, fitting within the composition of the façade and adopting the measurement and scale of the building itself. It reveals the height up to which the public uses are hosted. The inner opening however correlates with the width of the linkage that allows for permeability and links back to the residential area. The outer opening adopts a vertical proportion while the inner opening takes a horizontal proportion, intersecting with the outer one. It is at the intersection of the two where the light is captured.

Studies of the façade allow me to identify and delineate the composition of this layered opening whilst the depth of this framing is lost. However, the elevation reveals the two scales that generate and display an ambiguous, reflected, contested and topological limit.



*Fig. 2.2.105*

Partial elevation and delineation of the framing of Linkage-Entrance 1 as entrance.

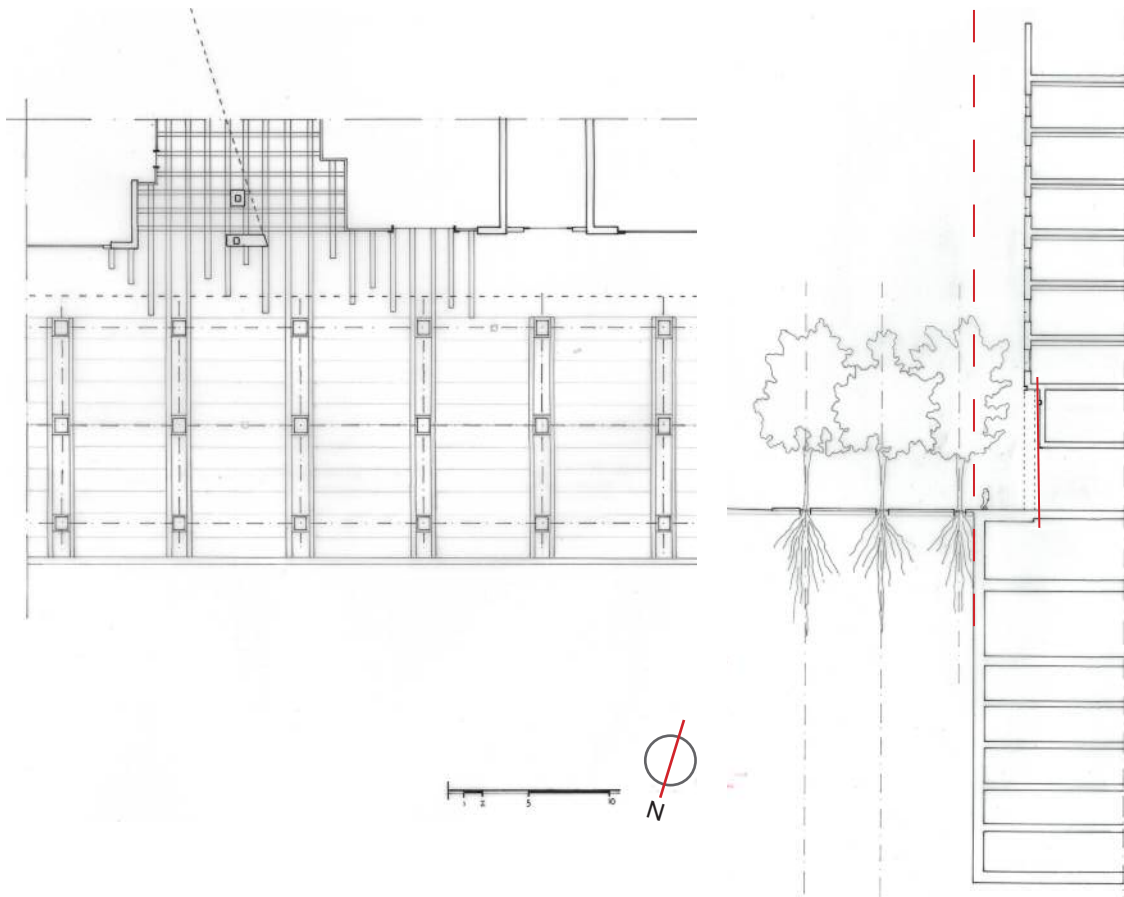


Fig. 2.2.106  
Linkage-Entrance 1 flooring in plan (left) and section with indicative lines (right).

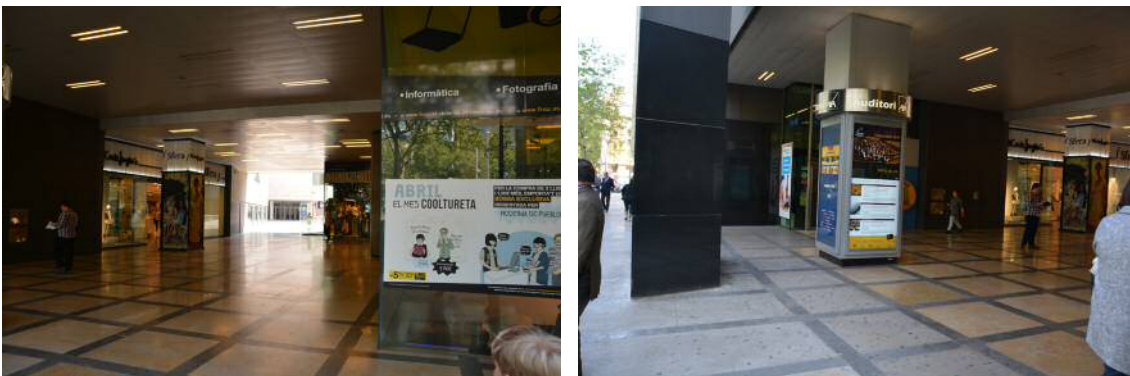


Fig. 2.2.107  
Views showing polished floor internally (left) and matte floor finish externally (right).

### The Multiple Lines of the Linkage-Entrance

Zooming in to the plan further reveals the pavement and illustrates the difficulty of delineating inside from outside and private from public property. The pavement of *L'illa Diagonal* is composed of big squares, allowing the original designers to emphasise one of the two directions or deploy it neutrally. The squares at the edge of the building become strips, accentuating the direction of the movement of the linkage and invading the pavement. The material of the pavement fills the in-betweens amid the strips, marrying both and providing continuity. This overlapping of the two flooring materials happens gradually moving from matte and durable materials used outdoors, to shiny materials used indoors as a symbol of luxury and the private domain. Thus, the limit between the inside and outside has been blurred, yet a clear message is portrayed with the change of materials separating the outside from the inside and more importantly delineating domains.

The section has not revealed these subtle changes, though it could perhaps register reflections from the floor and lighting from the ceiling on the flooring.

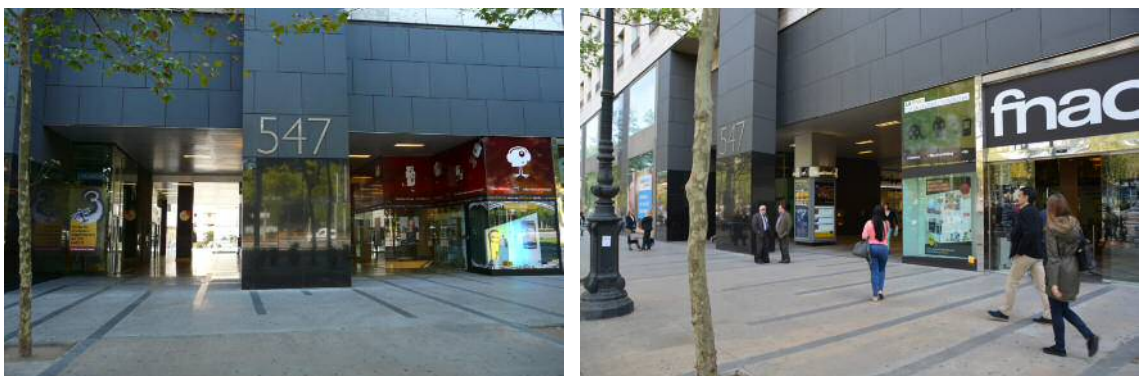


Fig. 2.2.108

View of Linkage-Entrance 1 showing internal pavement lines transgressing avenue pavement.



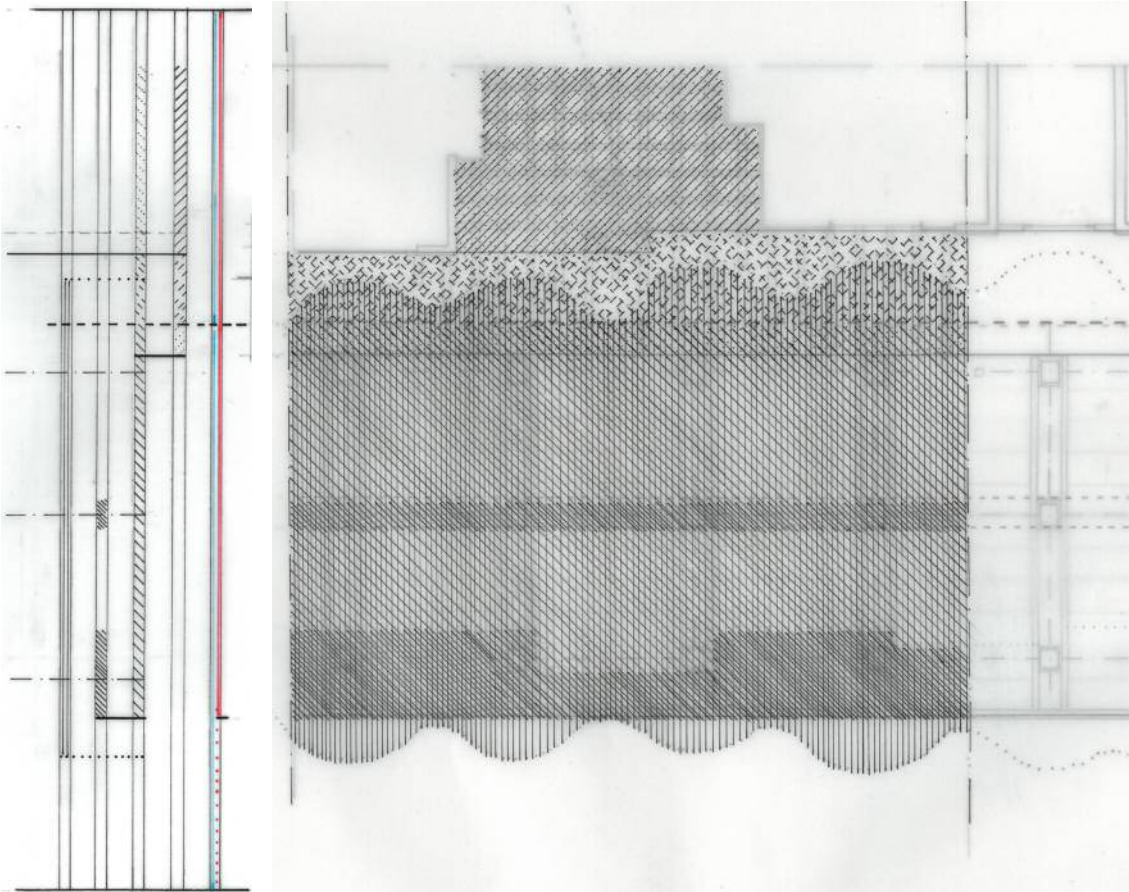


Fig. 2.2.109  
Linkage-Entrance 1 overlapping strips in plan and stave diagram of strips.



Fig. 2.2.110  
View of Avinguda Diagonal showing overlapping strips illustrated in the diagram above.

### **The Multiple Strips of the Linkage-Entrance**

The delineation of the limit has identified lines with different values and meanings which are associated to ends and beginnings of things: strips. The diagram maps the zones defined by the lines and the overlaps of certain zones, and some juxtapositions due to added activities or uses. The diagram to the side uses a notation that is similar to the stave used for musical composition. The stave records the zones separately, allowing them to be visualised simultaneously yet to be read in sequence as experienced. The right hand strip of the stave records the physical versus the visual access. The next strip from the right records the private property and the one above the public access. This is followed by the activities as a zone of services with benches for seating and the zone to park motorbikes and bikes. The left hand strip maps the area of the canopies of the trees. The strips are interdependent, and this is represented with the perpendicular lines to the strips indicating in some cases belonging and/or contestedness.

The drawing and re-drawing of the limit revealed multiple lines with a change of balance between the joining and separating.

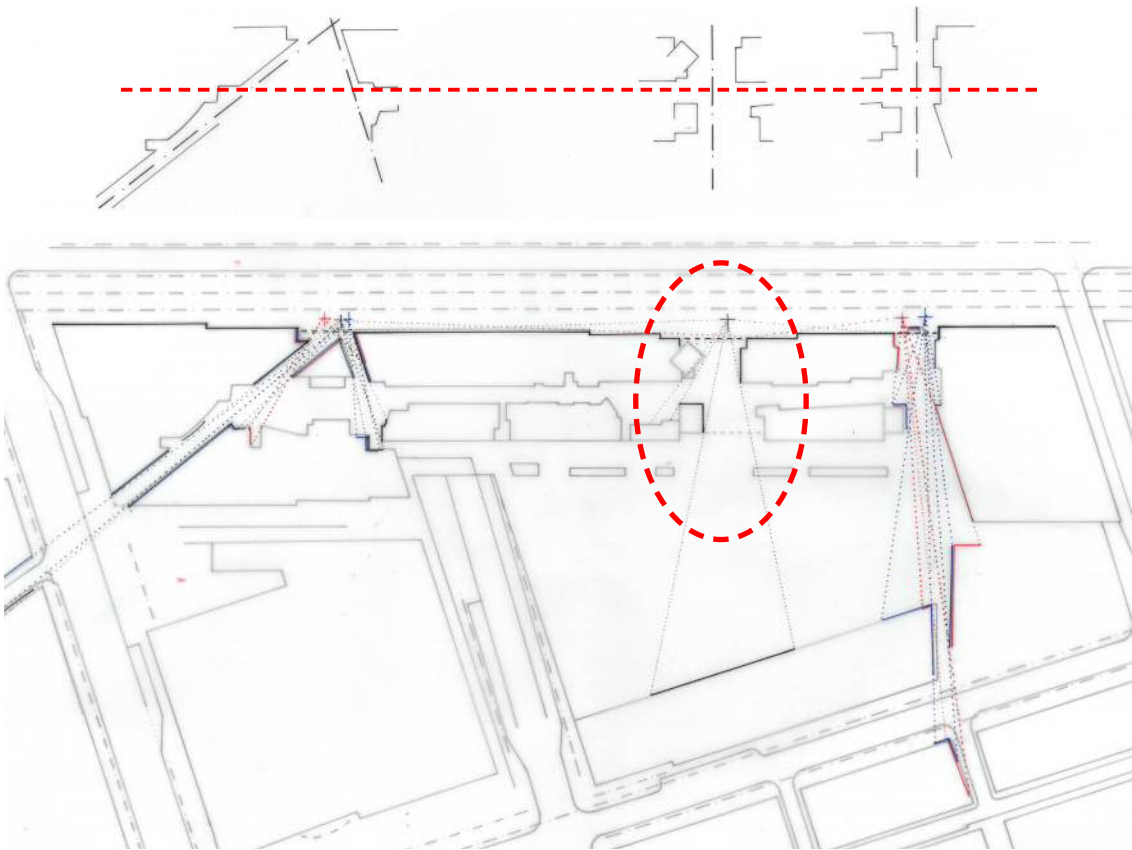


Fig. 2.2.111  
Diagram of Linkage-Entrances related to internal arcade (top) with view lines on plan (above).



Fig. 2.2.112  
View of Linkage-Entrance 2 from opposite pavement, with lines identifying the "here", "there" and "over-there".

## Linkages - Entrances 2

### Locating Linkage-Entrance 2 i

Linkage-Entrance 2 provides access to the heart of the inner open space in the superblock. It sits two thirds of the way down *L'Illa Diagonal* from *Carrer Numància*. It is intended that this is the main entrance to *L'Illa Diagonal* and this is reflected in its size, and more subtly by the brief interruption of the regular tree lines placed on the pavement. Moreover, it is visible from the other side of *L'Illa Diagonal* as the building reaches its narrowest width at this point, where the inside of the superblock approaches the outside.

The photograph from the other side of *Avinguda Diagonal* presents this linkage-entrance as a portal, part of the façade that mediates between the floor and the sky. This portal belongs to the background where the foreground and middle ground are projected. It shows as the end of the avenue concealing with the façade and revealing with the portal and the beginning of what it is beyond (the inner open space). The plan shows that an eyeline reaches from the avenue placed on front of the portal and its simplicity contrasts with the other two linkage-entrances.



Fig. 2.2.113  
View of Linkage-Entrance 2.

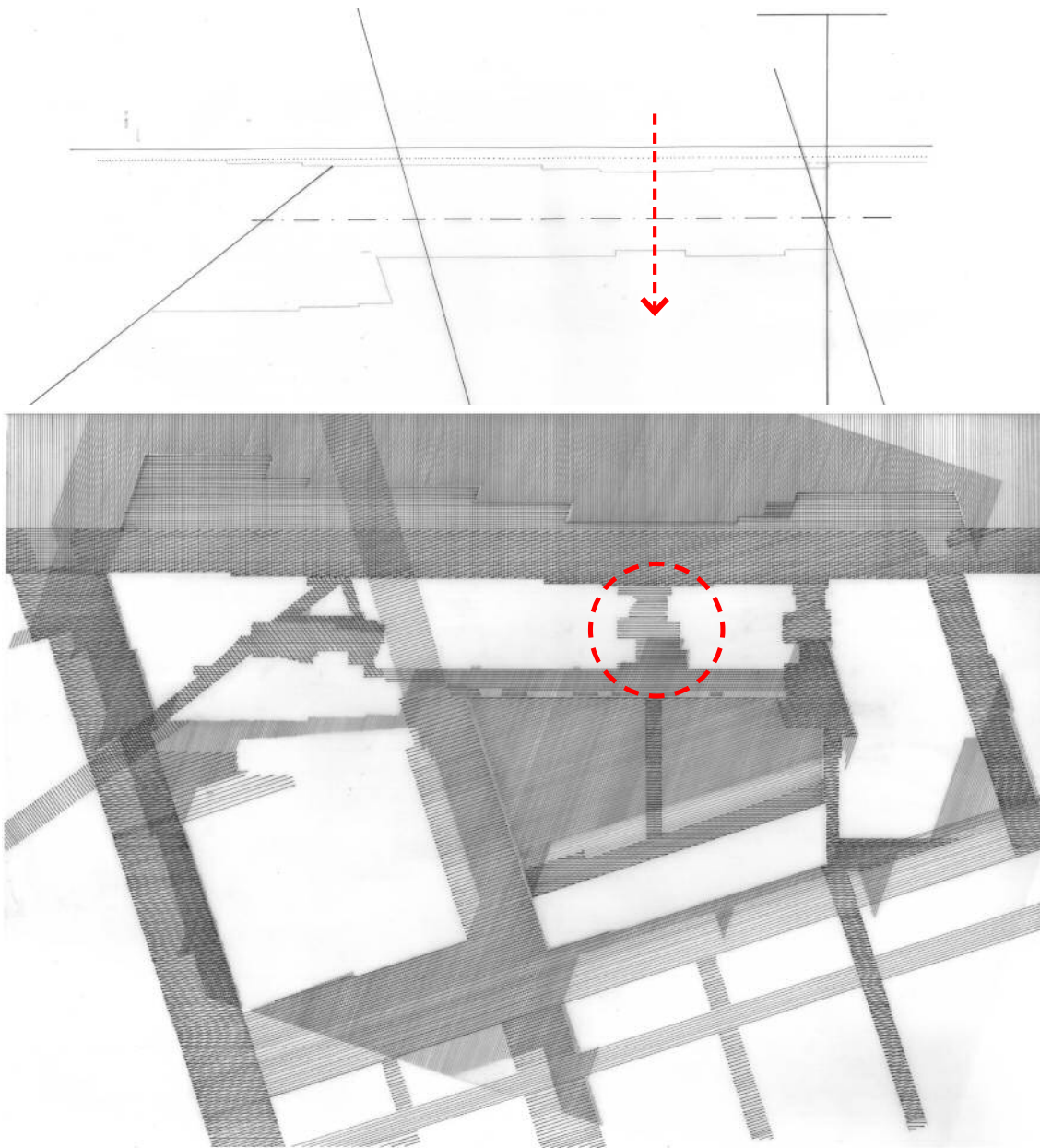


Fig. 2.2.114

Linkage-Entrance 2 is unidirectional (arrow) contrasting with 1 & 3, which are multidirectional- see hatching on bottom image.



**Locating Linkage-Entrance 2 ii**

This linkage-entrance is located according to the programme of the building, is not fixed by any street of the residential area and is perpendicular to the *Avinguda*. Thus, the superbloc is drawn from the generative lines of the other three linkage-entrances shown on the diagram that end by intersecting with the avenue. The shadow of *L'illa Diagonal* onto the avenue reveals how this linkage-entrance and portal are placed on the part of the building with a lower height. This linkage-entrance has two hinges at perpendicular directions. One hinge is transversal to *L'illa Diagonal*, taking the direction of the linkage. The other hinge sits longitudinally within *L'illa Diagonal*, linking with the arcade of the shopping centre and also intersecting with the other two linkage-entrances.

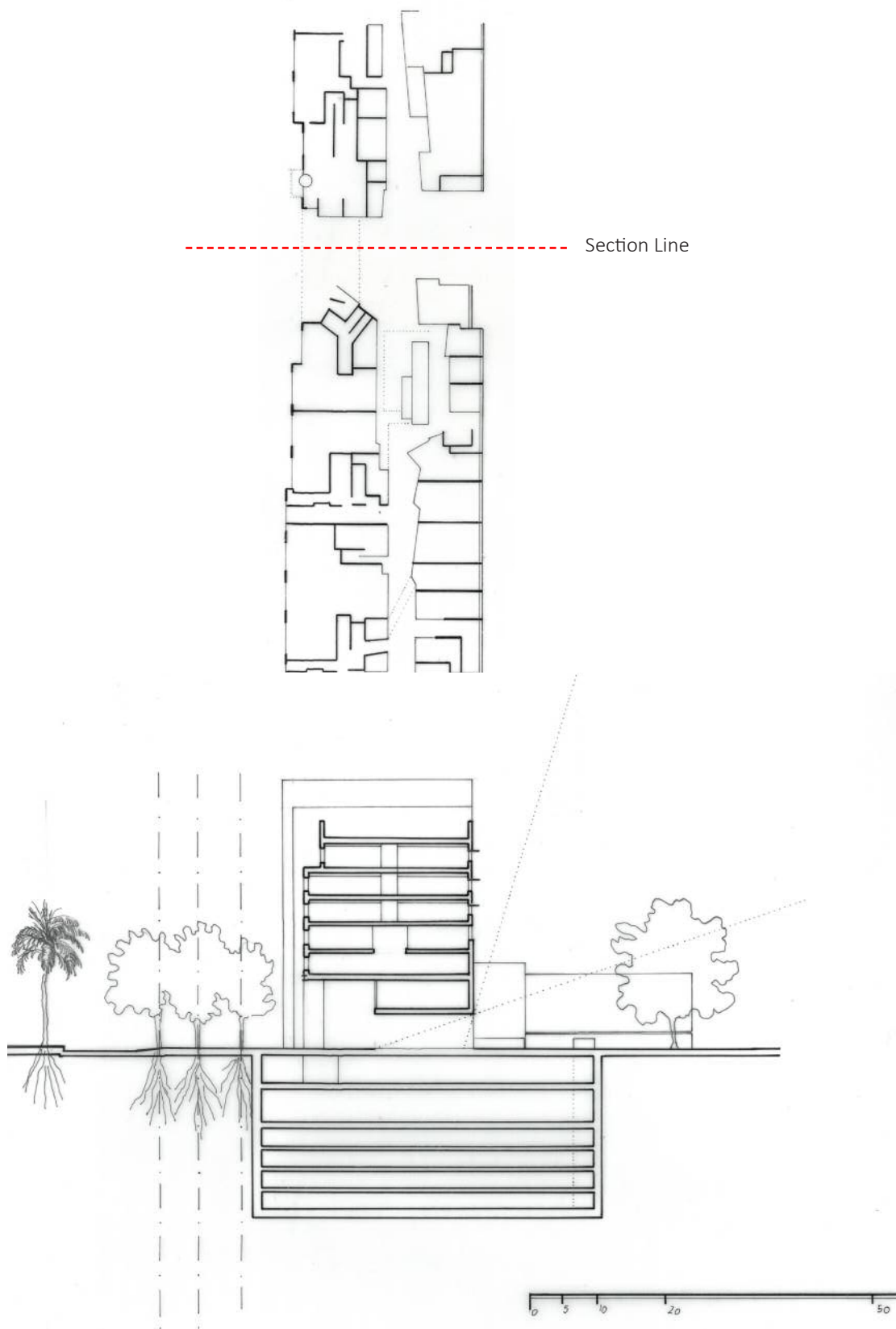


Fig. 2.2.115  
Linkage-Entrance 2 in plan (top) and correlated section (bottom).

### Configuring Linkage-Entrance 2 i

As in the previous linkage-entrance, this one discloses the longitudinal and transversal directions to the movement and building, defining it as both linkage and entrance. The linkage allows movement, and this penetrates the building seeking to connect the two sides of the building. However, the building has a materiality consisting of walls and floors that contain whilst separate and these are transgressed in order to connect and so provide access to the building thereby creating an entrance.

The plan displays the more or less a constant width of *L'illa Diagonal*. Yet the dotted auxiliary lines delineate the changes occurring due to variations of elements above<sup>29</sup> the plan cut-height and these reveal something different. The dotted lines have first been placed in section and then transferred to the plan presenting the complementarity of the plan and section when drawing and delineating.

In the section, two dotted lines representing the angle of the sun at the solstices of December and June are mapped, thus measuring the degree of penetration of the sun at the extremes of its seasonal arc.

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<sup>29</sup> A plan is the result of a horizontal cut and the horizontal projection of the elements cut. Conventionally, the cut is taken at about 1.5 metres above the floor.



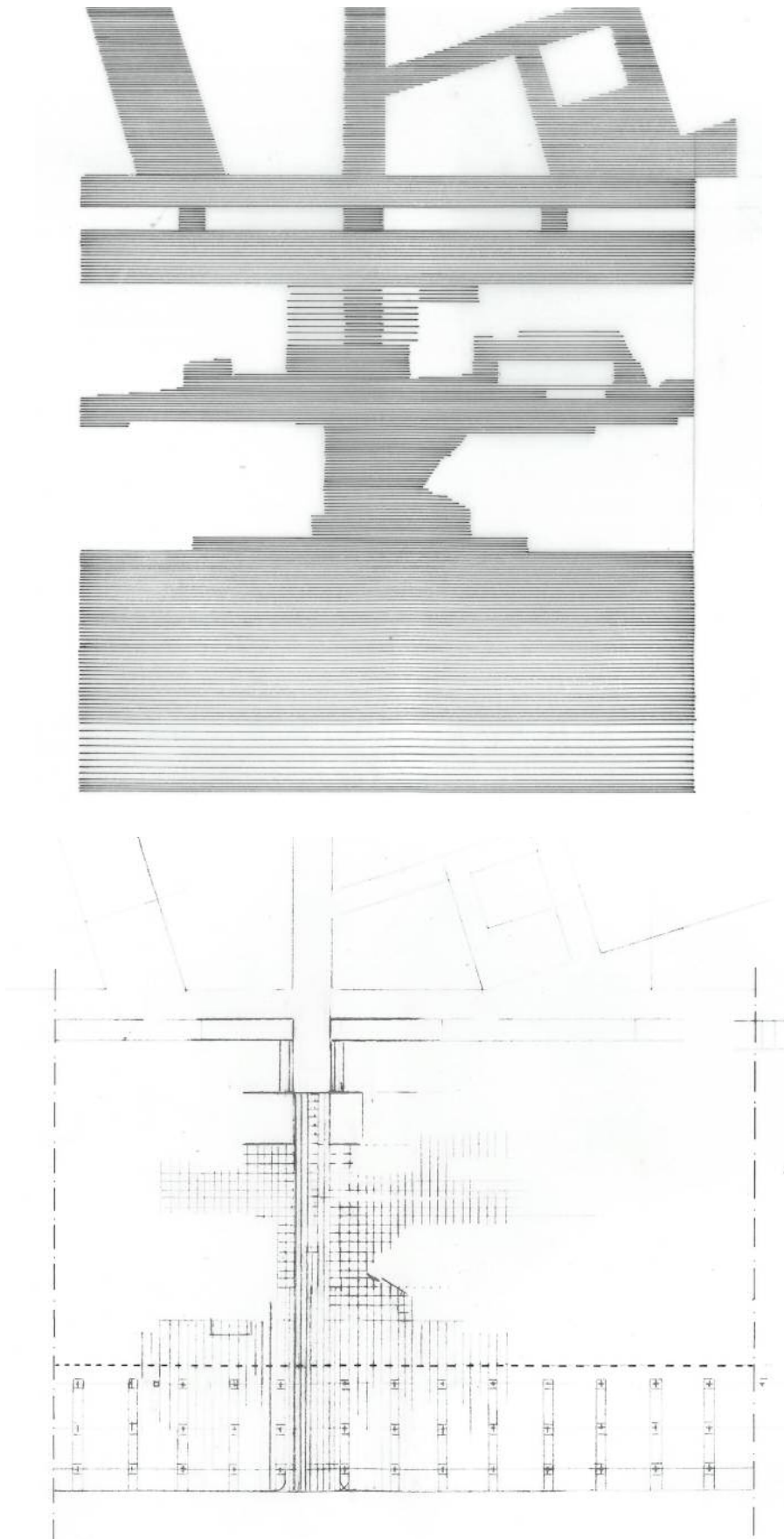


Fig. 2.2.116  
Linkage-Entrance 2: Overlay of directional hatch, representing directions of movement (top) and  
flooring plan (bottom).



### Configuring the Linkage-Entrance 2 ii

The building presents little resistance to the linkage crossing it. The hatched diagram shows the fluidity of movement around. The lines at *Avinguda Diagonal* have no end while crossing the building these encounter the limits. Very few lines have the same length, disclosing variety. When meeting the open inner space the lines once again have no end. It is easy to access the building but even easier to cross it without crossing a door. The hatched diagram displays this “easiness” and the mapping on plan of the flooring reinforces the direction of movement along the linkage and highlights the continuity and transition between pavements.

The line diagram below presents the bearing and generative lines of the building in the direction of the linkage. These are read as guidance lines as they do not exist per se. However, these generate the flooring as designed and their relevance is recorded with a type of line and thickness. This diagram reveals an imperfect symmetry from which to read the inhabitable, asymmetrical and fluctuating strip.

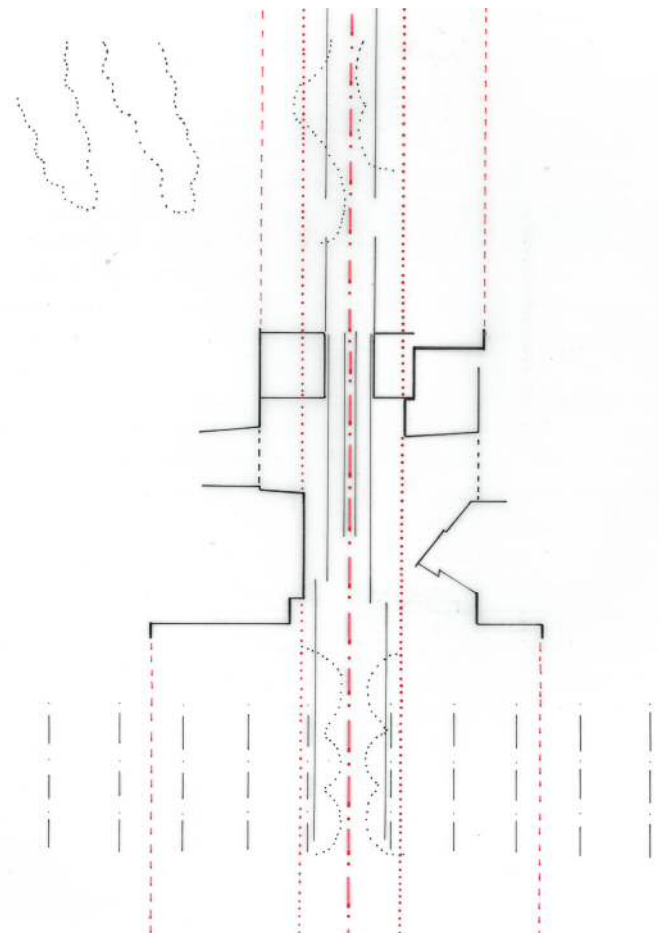


Fig. 2.2.117  
Linkage-Entrance 2: generating lines in plan.

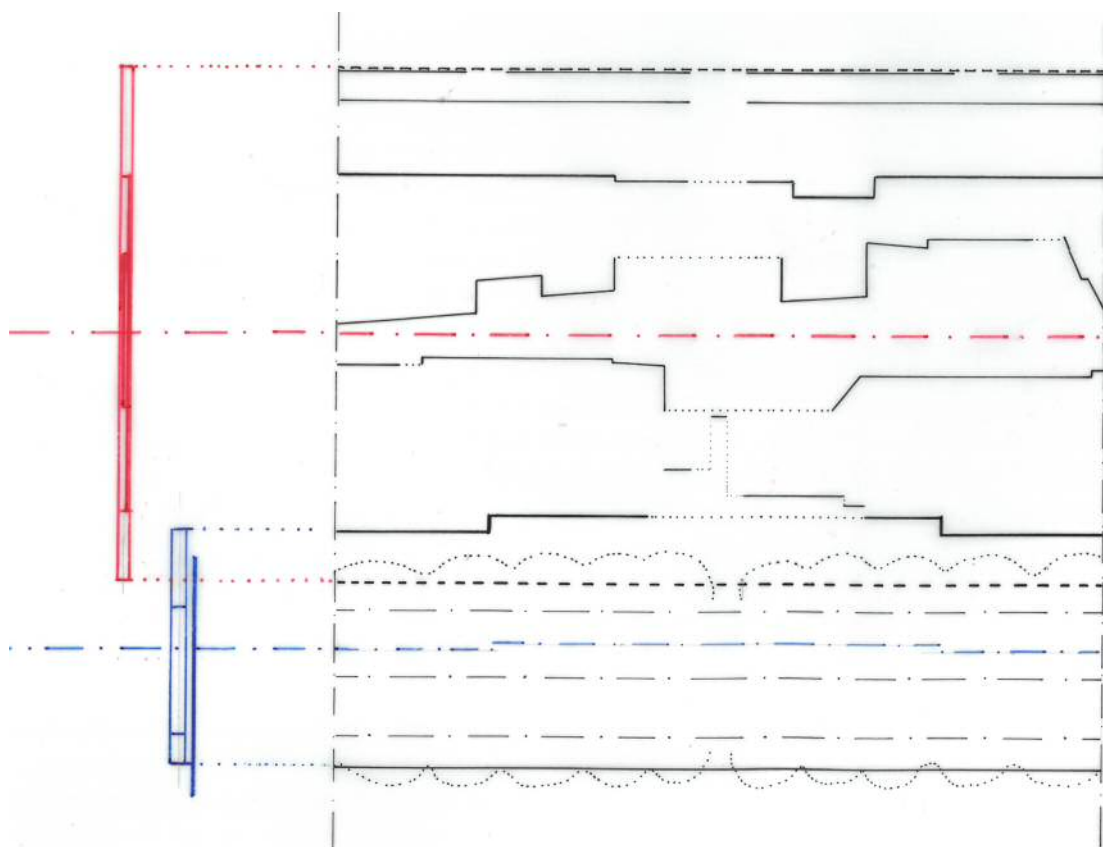


Fig. 2.2.118  
Linkage-Entrance 2: generating lines of the portal in plan.



### Configuring the Linkage-Entrance 2 iii

Nonetheless, *L'illa Diagonal* poses a certain degree of resistance to the linkage manifested in its perpendicular direction. The façade, without losing presence, is perforated forming an opening and in the drawing this is translated into an heterogeneous line. This line is fragmented, revealing the controlled movement of the folds of the skin and a fragment is dotted revealing the perforation and removal of part of the skin. The inner upper floor is interrupted to conform with the opening and dotted lines reveal this and the reflective nature of this limit. This study of the limit, in the perpendicular direction of the linkage, discloses an imperfect asymmetry contested by the different adjacent spaces to the limit.



Fig. 2.2.119

View of Linkage-Entrance 2 with superimposed lines presenting it as portal.

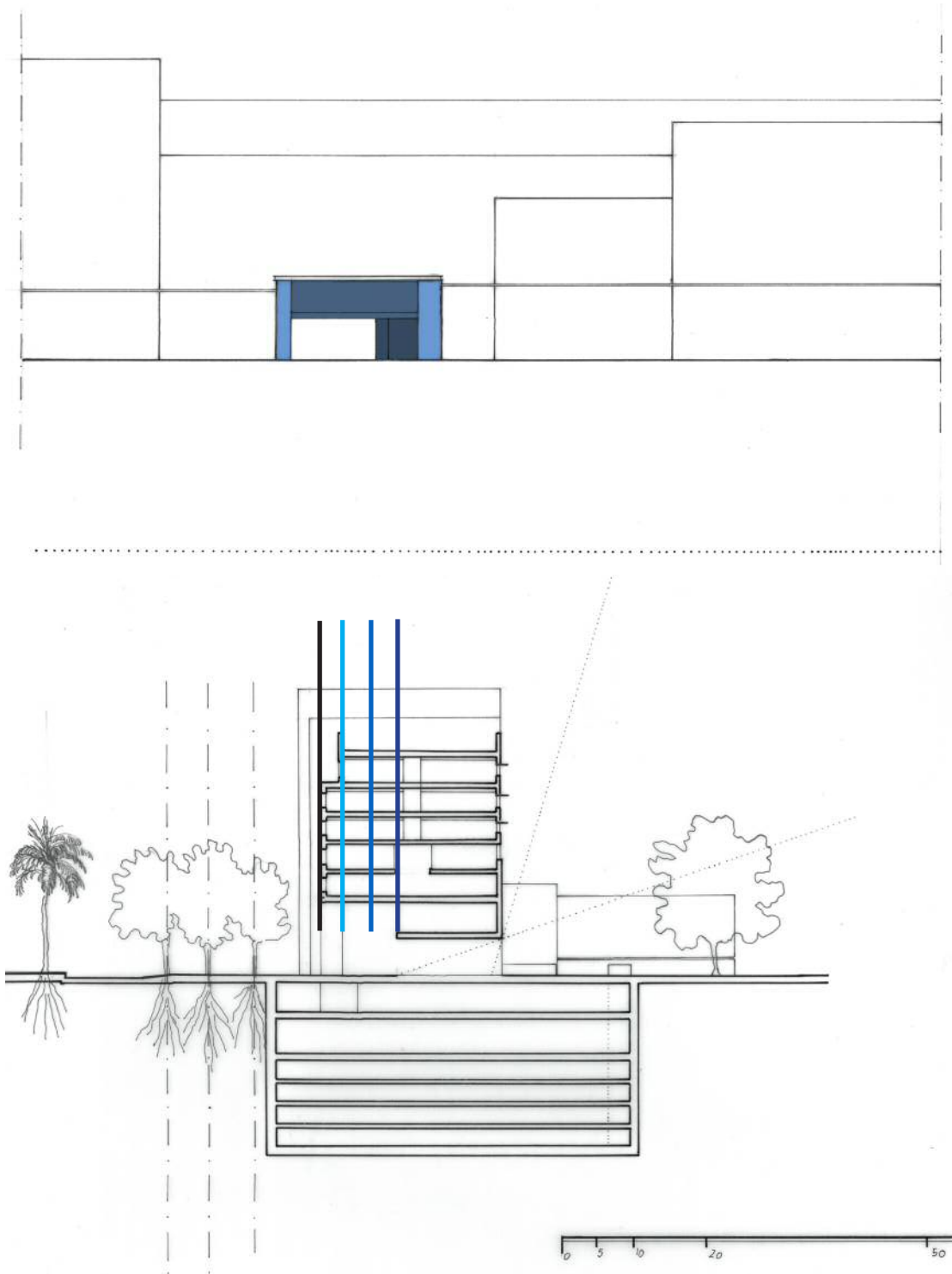


Fig. 2.2.120  
Linkage-Entrance 2 as portal and framing in elevation (above) and matching framing lines in section (below).

### Framing in Linkage-Entrance 2 i

This linkage-entrance frames what is behind. The opening is like a window displaying another world, a private sunny world that contrasts with the shaded space running along the façade of *L'illa Diagonal*. The linkage-entrance 1 already presented a quality of framing, while in this case, this quality is even stronger.

The frame is based on the bearing and generative lines of the configuration of the linkage-entrance deriving from the building. Thus, the frame starts, and it is set from the perforation of the façade but takes the width of the building, resulting in a frame with a depth that is able to be inhabited and thus displays spatio-temporal qualities. The opening delineates the first layer of the frame dimensioned as part of the composition of the façade, but also to have presence within the façade and on the *Avinguda*. This frame reveals secondary and tertiary frames sitting within the primary one. These are defined by the interior of the building becoming exterior at this point and being contested by this. The frames are outlined in elevation but with the assistance of the section it is possible to uncover their depths and spatio-temporal qualities.



Fig. 2.2.121  
Linkage-Entrance 2 view as portal and entrance

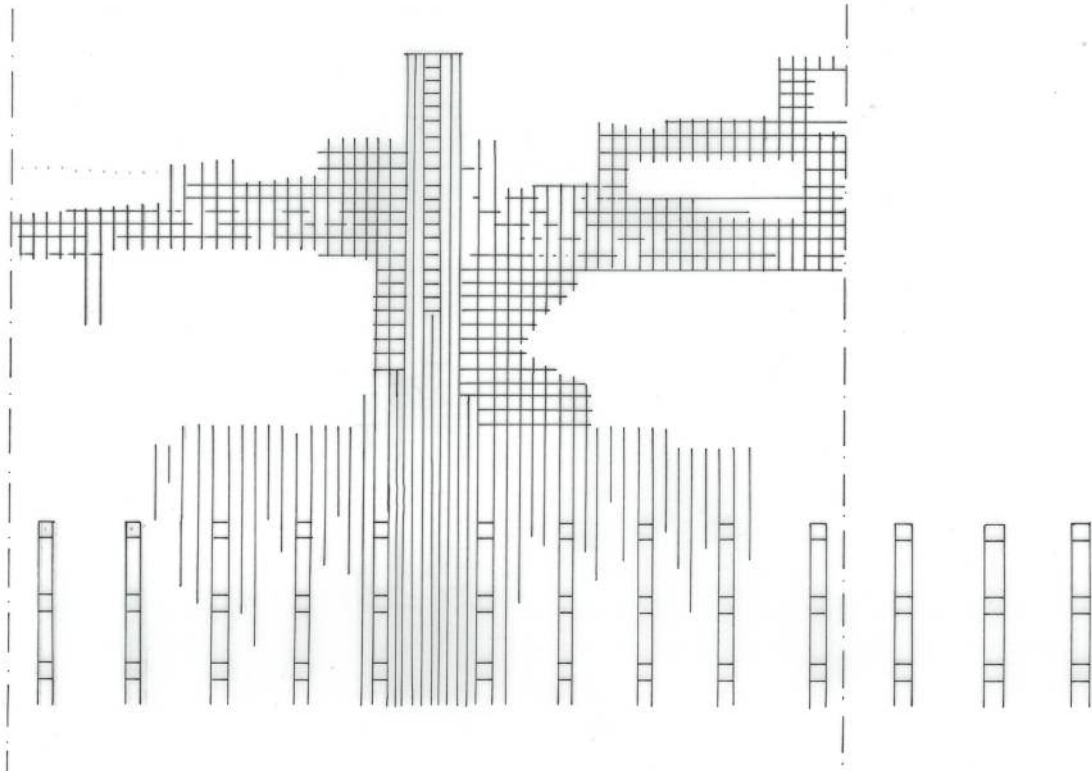


Fig. 2.2.122  
Linkage-Entrance 2 flooring outline in plan.

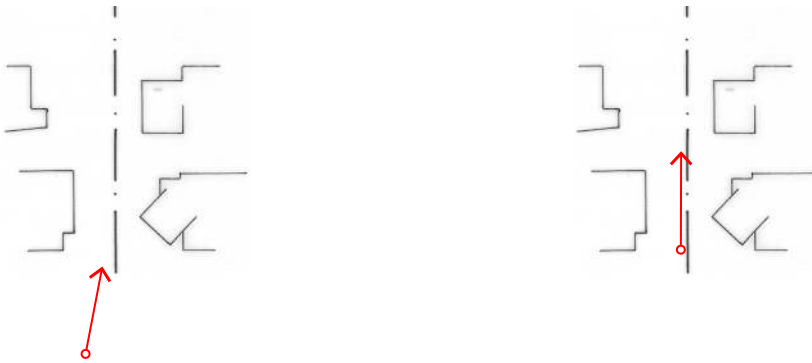


Fig. 2.2.123  
Linkage-Entrance 2 serial view from Avinguda Diagonal to space beyond, continues on facing page.

### Framing in Linkage-Entrance 2 ii

Firstly, the multiple frame explained on the previous page is shaped by the idea of entrance and portal and is delineated by the lines representing planes sitting within the façade of the building and parallel to it. These lines represent, or are part of, planes that are perpendicular to the direction of the movement of the pedestrian when entering or crossing the building. The frames placed at different moments are brought together by the pavement, designed in accordance to the generative lines of the linkage and which are perpendicular to the building yet suggest continuity and movement. Similarly to the linkage-entrance 1, the flooring changes in a gradual manner between the outside and inside. The outside flooring is composed of large pieces of a matte, durable material suitable for all weathers, whilst the flooring inside the building is polished. The linkage is composed of the intersection between both floorings, accentuating the direction of the linkage and acting as a rug linking the frames, inviting pedestrians to take the linkage. The reflections on and of the materials take an important role in relating and bringing the outside to the inside.

The mapping of the flooring presents the gradation between the outside and inside and how the inside has invaded and overridden the lines perpendicular to the movement.





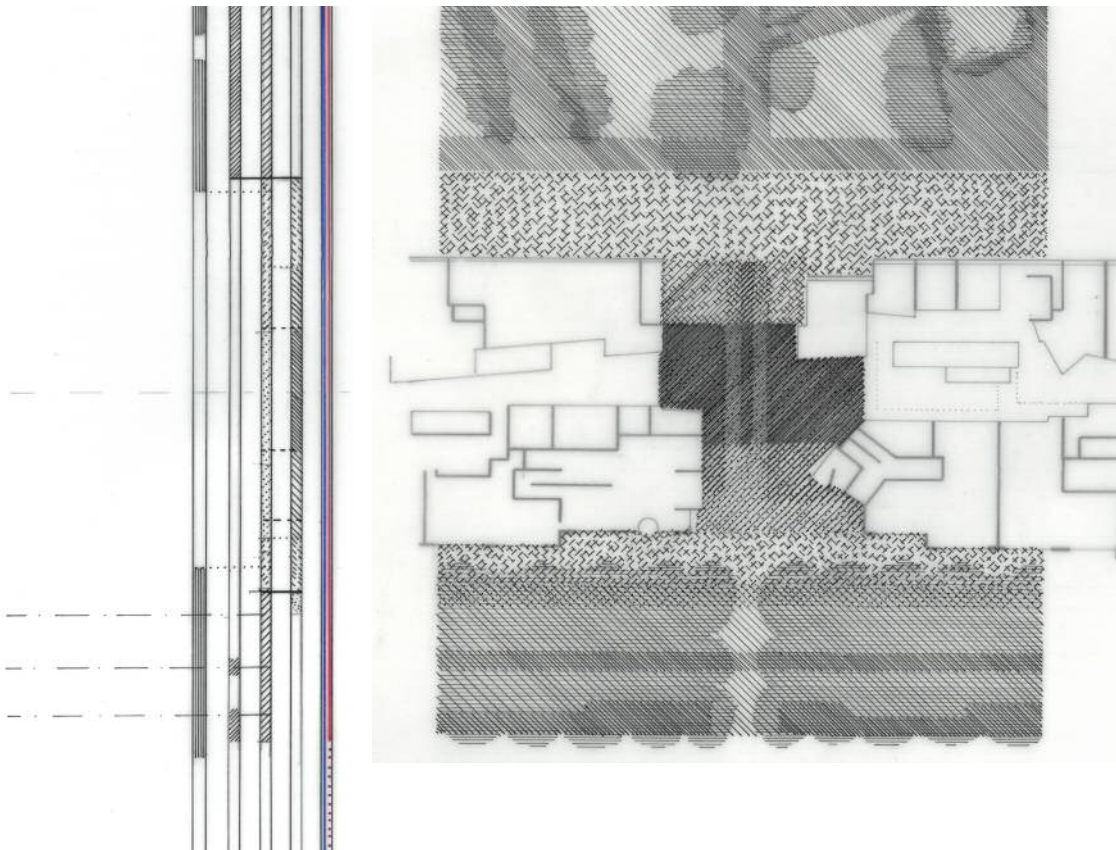


Fig. 2.2.124  
Linkage-Entrance 2 overlapping strips in plan (right) and stave diagram of strips (left).

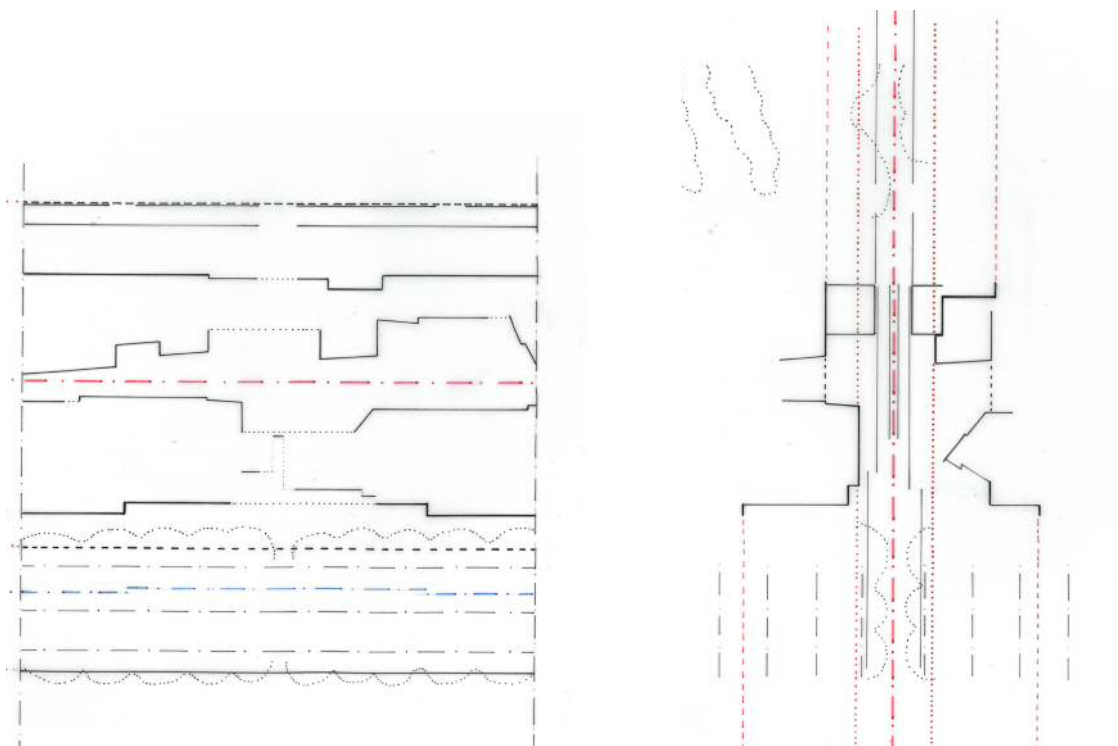


Fig. 2.2.125  
Linkage-Entrance 2 generative lines as entrance in plan (left); generative lines as linkage in plan (right).

### **The Multiple Strips of the Linkage-Entrance 2**

Based on the overlaying of the delineations of the linkage-entrance with lines, a plan of surfaces representing this limit is generated. The surfaces are bounded with the bearing and generating lines. The longitudinal lines of the limit are more visible and define the bands with some intrusion of the transversal lines. The plan shows the overlapping of different bands and gradations within a band.

Based on the overlaying, a diagrammatic stave, as with the one produced for linkage-entrance 1, presents the bands separately with their own gradation where it applies. The perpendicular lines to the stave provide the structure, linking and placing one band in relation to the others, as part of a whole.

The diagram with the generative lines of the opening as entrance and portal is presented alongside the generative lines of the opening as linkage. These combined diagrams display the spatial configuration of the linkage-entrance 2. It reveals the duality of this limit, joining and separating as well as its asymmetry and changeability, where at one point it feels more like an entrance but later feels more like a linkage. Thus, the ambiguity is felt but also represented.

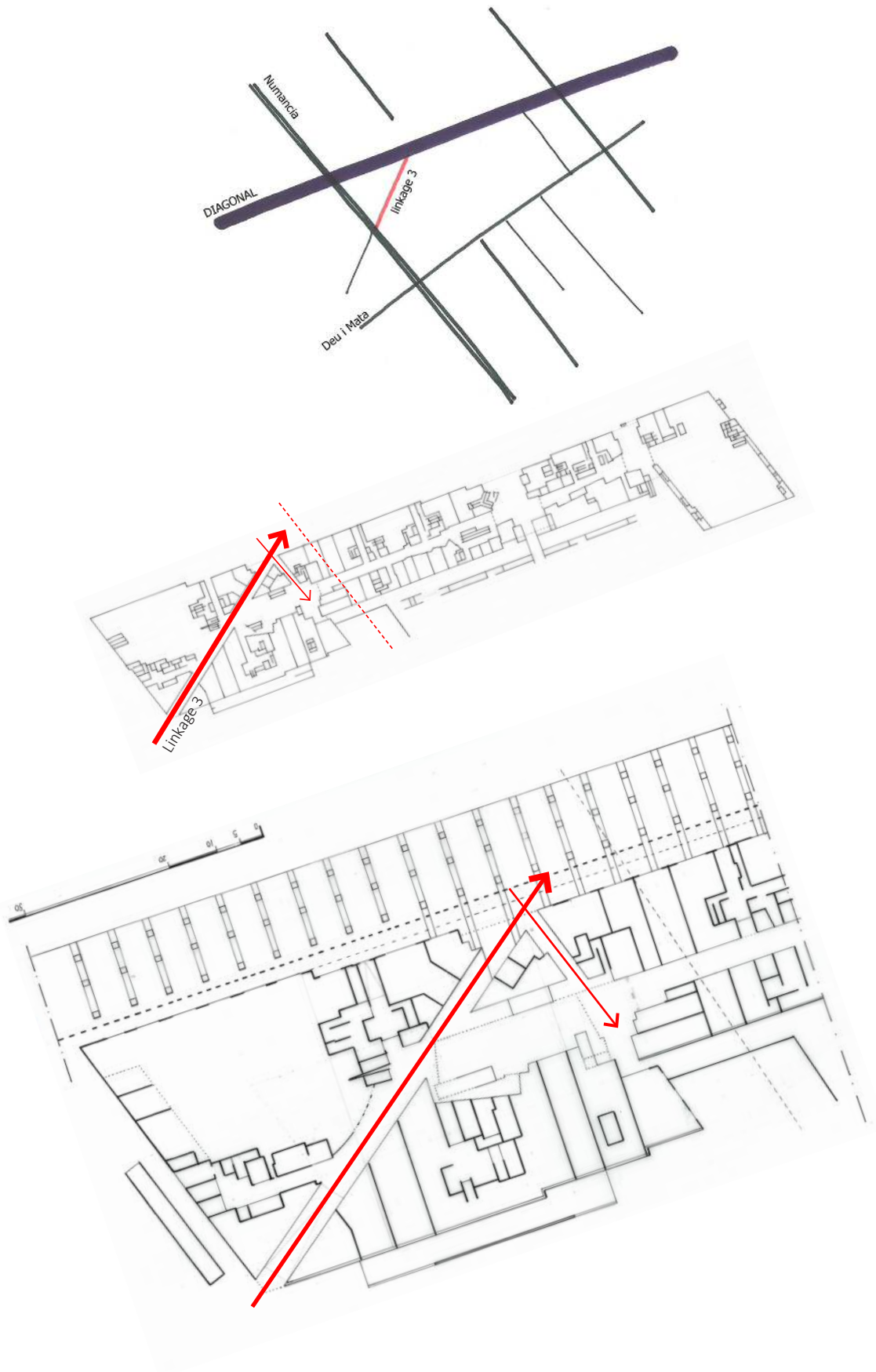


Fig. 2.2.126  
Locating Linkage-Entrance 3 within the street pattern (top), in plan (middle), in detail (bottom).



## Linkage-Entrance 3

### Locating Linkage-Entrance 3 i

This Linkage-Entrance is placed so that it connects directly with the old heart of the neighbourhood of *Les Corts*. It is considered an extension of the historical *Carrer Anglesola*, taking this road's direction, yet it has a different character. It intersects with *Carrer Numància* appearing at *Avinguda Diagonal* about a third of the way along *L'illa Diagonal* from *Carrer Numància*. Thus, this linkage-entrance (3), in a similar fashion to linkage-entrance 1, comes from the neighbourhood, in contrast with linkage-entrance 2 which simply seeks a direct and easy link between *Avinguda Diagonal* and the inner open space beyond the building.

This linkage-entrance, in its role as linkage, easily collects the flow of pedestrians from the south-west of *Carrer Numància* and *Les Corts* and from the north-west of *Avinguda Diagonal*. Yet, the flow from the north-east of *Avinguda Diagonal* is not attracted into *L'illa Diagonal*. As a result, the linkage at the *Avinguda Diagonal* end splits in two under the same entrance. The secondary route takes the same direction as the underground vehicular linkage from *Carrer de Nicaragua*. Both linkages bound the space of the atrium (inner roofed space open to the sky), whilst connecting it with the wider context and anchoring it within the building. These are reflected in the hatched diagram below.

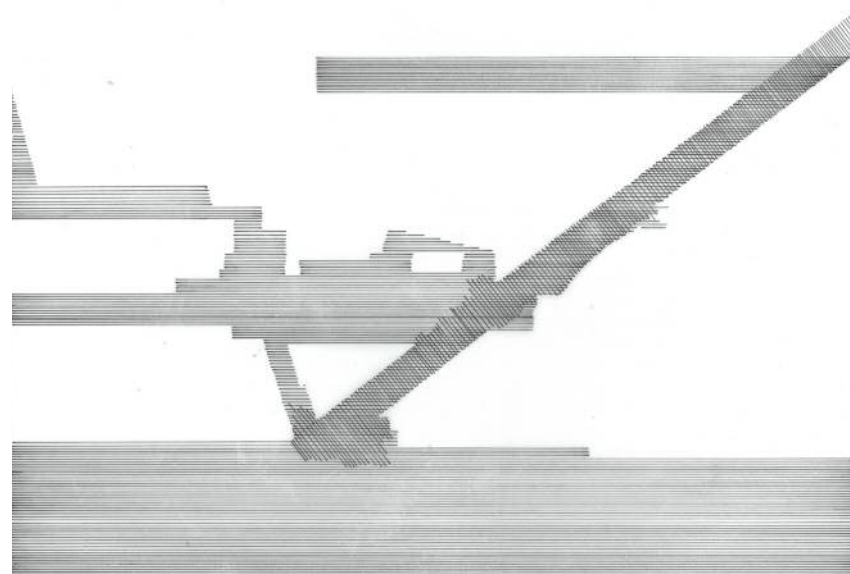


Fig. 2.2.127

Linkage-Entrance 3 overlay of directional hatches, representing directions of movement.



On the Limit

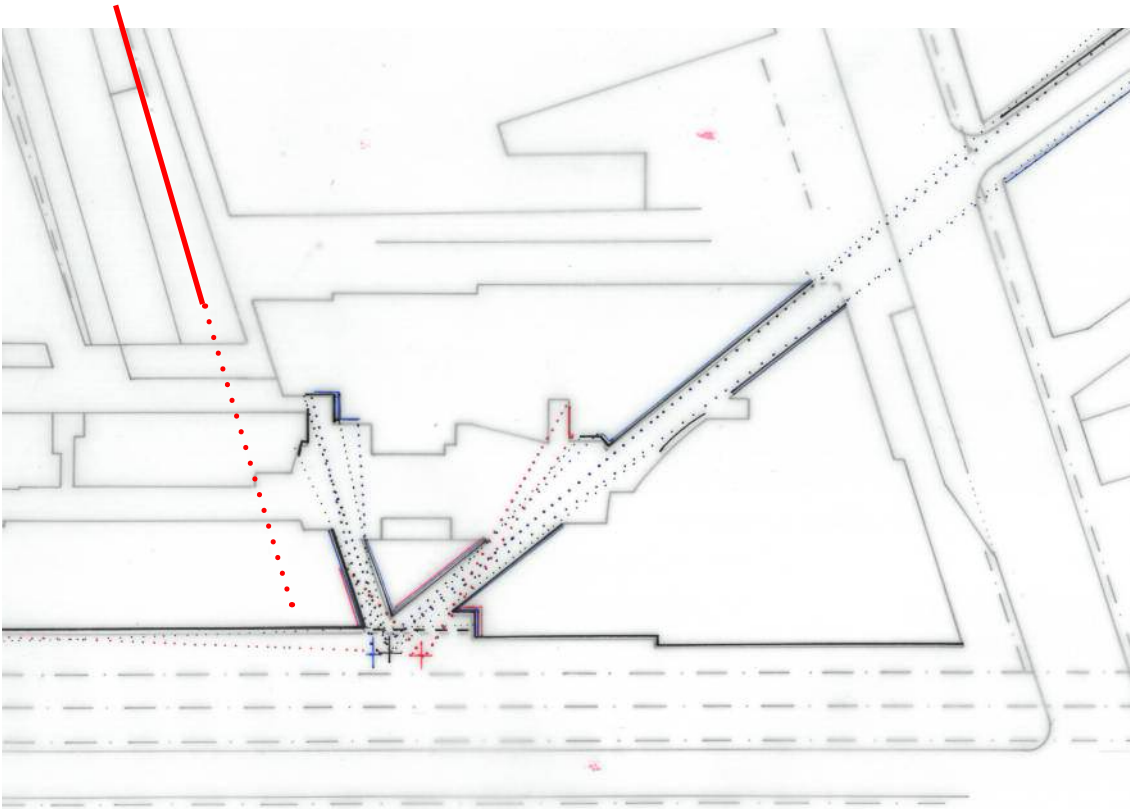


Fig. 2.2.128  
Linkage-Entrance 3 in plan with view lines.



Fig. 2.2.129  
Views of Linkage-Entrance 3 from *Aviguda Diagonal* (left) and from *Carrer Numància* (right).

### Locating Linkage-Entrance 3 ii

The entrance 3 on Avinguda Diagonal hosts the two linkages where they converge. It sits within the ground floor of the podium and is defined by a constrained floor to ceiling height and a long width. In fact, this entrance could easily pass unnoticed. The secondary linkage ending in the atrium shows shorter views than the primary link with long views with a tunnel affect, punctuated by the light entering the building through the atrium. The entrance into the primary linkage from Carrer Numància and aligned with Carrer Anglesola sits on the corner of the building, perforating the building by creating an opening where the floor and ceiling are mimicked. This contrasts with the opening in Avinguda Diagonal, as it is characterised by its height and narrowness aligned with the traditional residential streets of the old part of Les Corts.

The rest of the study concentrates on the study of the intersection of the entrance from Avinguda Diagonal and the two linkages.

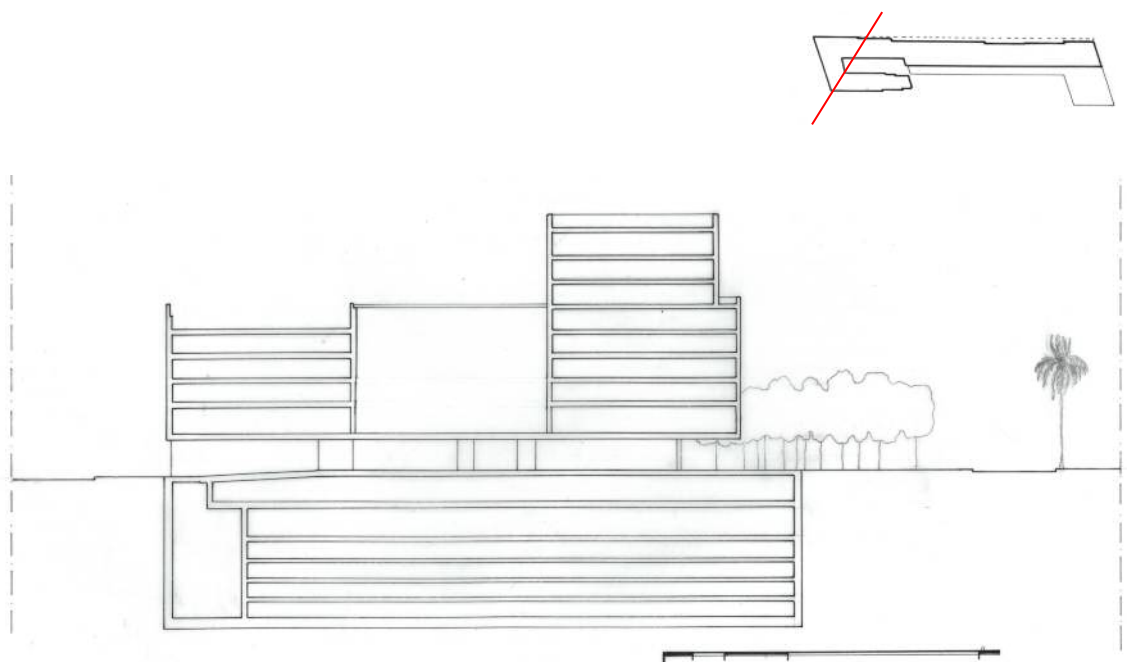


Fig. 2.2.130  
Section through *L'illa Diagonal* at main Linkage-Entrance 3.

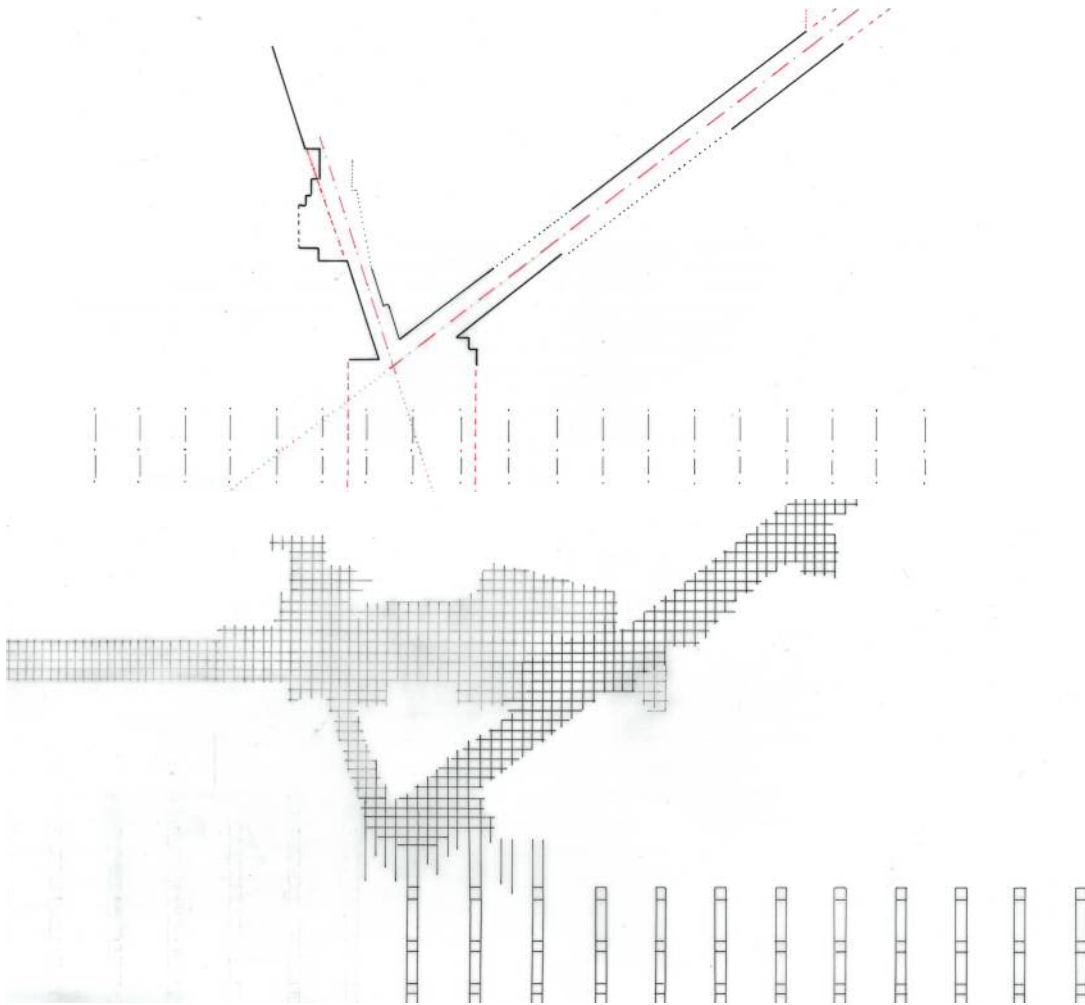


Fig. 2.2.131 Linkage-Entrance 3 generative lines as linkage (above) and flooring emphasizing linkage (below).

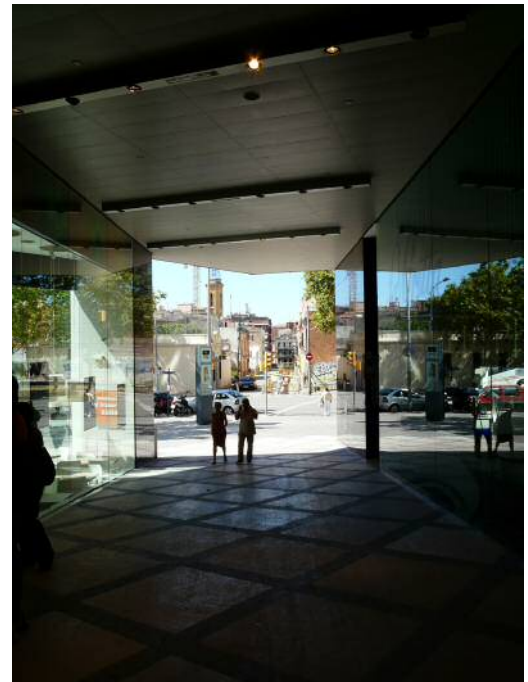
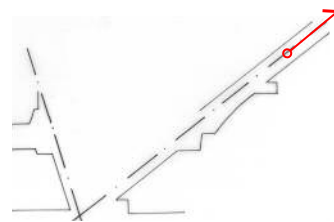
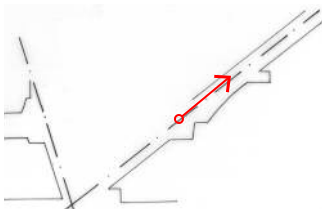


Fig. 2.2.132 Serial view of Linkage-Entrance 3 from the *Avinguda* (far left, this page) through interior, to *Carrer Numància* (far right, facing page).

### Configuring the Linkage-Entrance 3 i

The transversal lines of the linkages crossing the building are long. They show no resistance at the Carrer Anglesola end, some resistance at the Avinguda end, and resistance where the secondary linkage ends in the atrium. At the Avinguda end, this resistance is due to the influence the Avinguda and, at the end of the secondary linkage, due to the influence of the inner passage of the shopping centre.

The design and lines of the flooring emphasises the direction of the linkages and the prevalence of the linkage with Carrer d'Anglesola. The directionality in the flooring starts in Avinguda Diagonal and continues with the alignment of trees. The flooring reveals a moment at the intersection of the two linkages and of the primary linkage and the atrium. By contrast, the secondary linkage flooring quickly fades into that of the atrium. The same tactics used in the previous linkages are also deployed here.





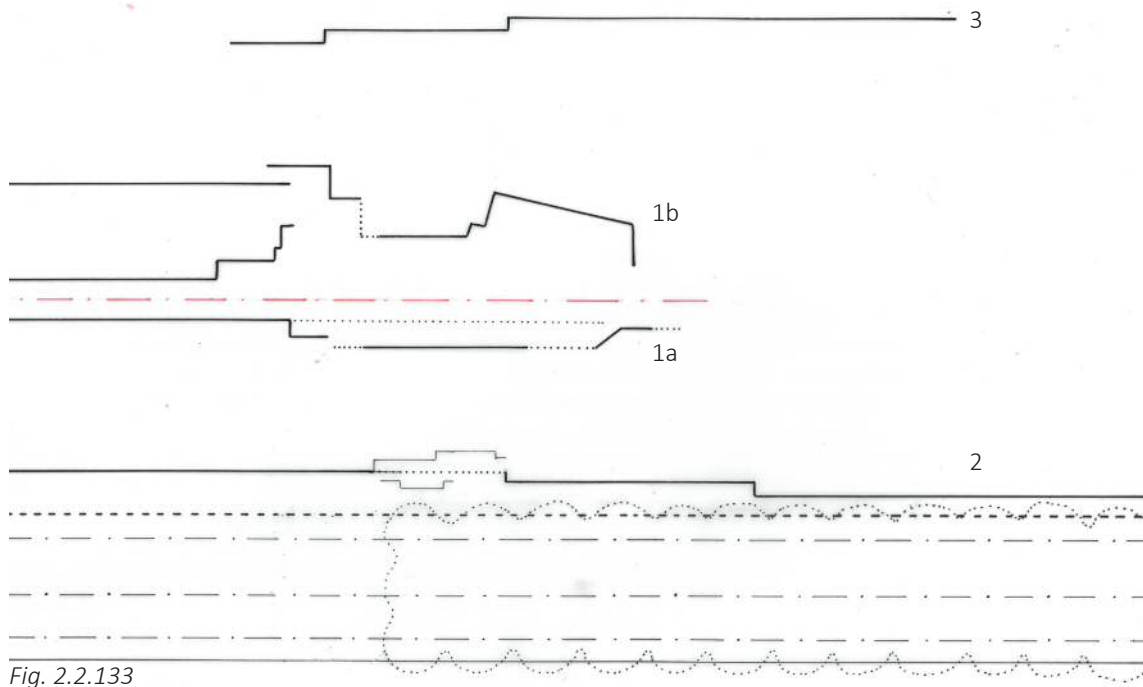


Fig. 2.2.133  
Linkage-Entrance 3 generative lines as entrance.

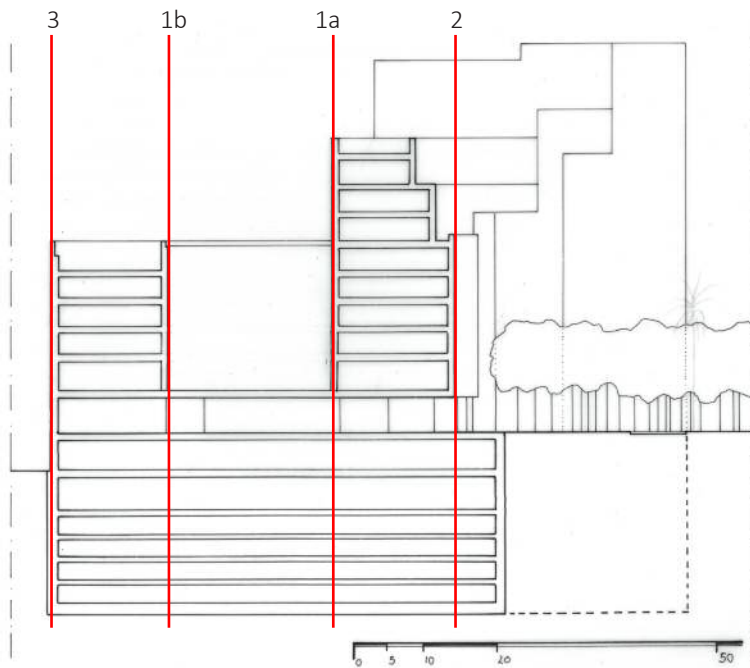
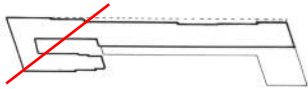
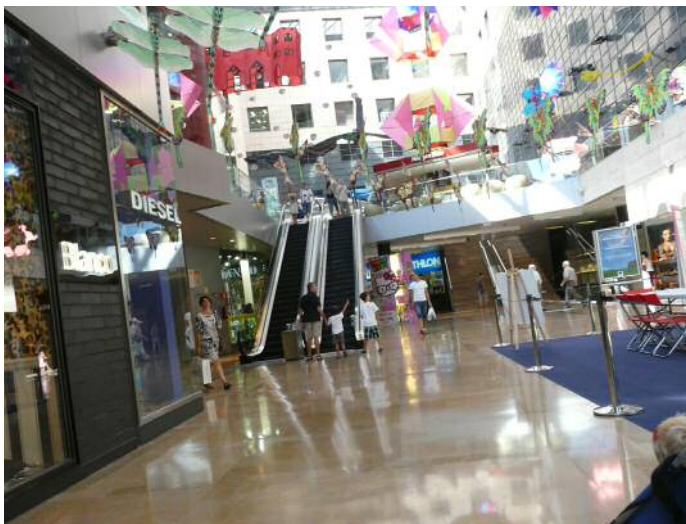


Fig. 2.2.134  
Linkage-Entrance 3 generative lines located in section.

### Configuring the Linkage-Entrance 3 ii

The longitudinal lines corresponding with the notion of entrance are fewer and more distinct here than in the other cases. An analysis diagram portrays the back façade as a continuous line with some folds similar to the ones on the main façade to the avenue. The middle lines correlate with the limits of the atrium and the lower ones with the front façade, lines of trees and kerb of the pavement. In the previous linkage-entrances, the façade generated a few lines at the entry point. In this case, as in the previous cases, the line of the façade is discontinued and supported by two short and gentle lines delineating a subtle but important change in the flooring.

In the drawing, the line of the façade is firm and robust. This line can handle being manipulated without losing determination, and this is more obvious when this is represented within the line as a whole. While drawing, lines are made as abstractions and codified, providing rigour and internal coherence to the drawing. The abstraction and codification are not separate processes, but dependent on the experience of the line. In the case of the dotted line, this is a fragment part of a line and reminds us of something that it is there and just lifted where it is delineated as a dotted line. The dashed line, in contrast to the dotted line, may highlight a space beneath or above that may or may not maintain a certain relationship with what it is depicted. The thickness of the line is crucial, allowing for a line to take presence or become part of the picture without being signalled. The thickness correlates to its capacity of bearing and generating. For example, the line delineating the façade takes a thickness as it limits inside from outside and/or private from public in relation to management, use or property. The line delineating the edge of a flooring at a large scale will not be recorded but at the smaller the scale, the more relevance this will have. Whilst the façade at a small scale is represented by several lines, each with a specific meaning and role.



*Fig. 2.2.135*  
View of Atrium tangentially crossed by the linkage-entrance 3.



Fig. 2.2.136  
View of Linkage-Entrance 3 from *Avinguda Diagonal*.

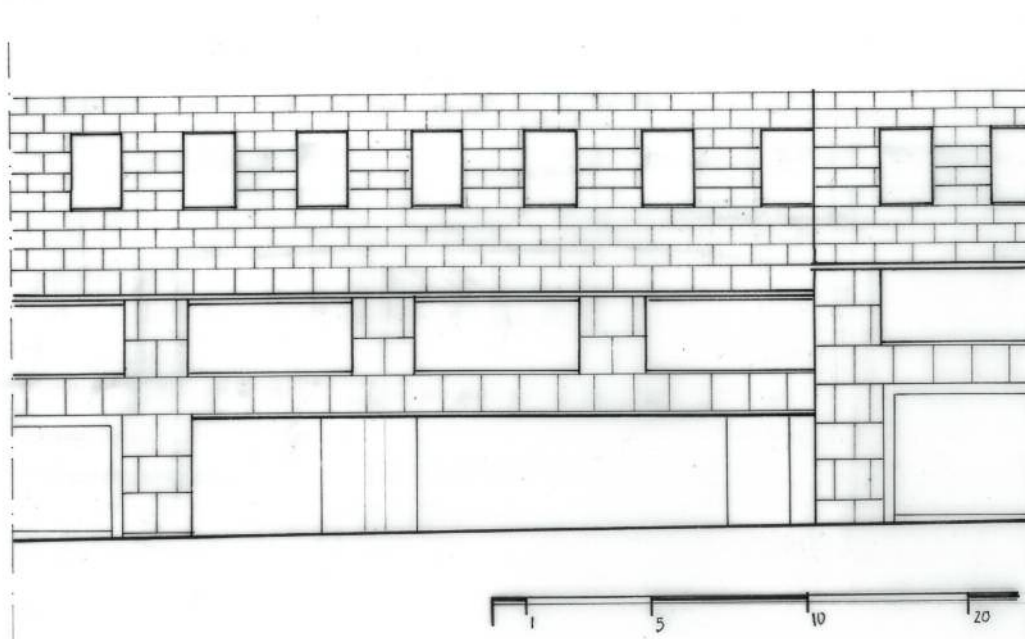
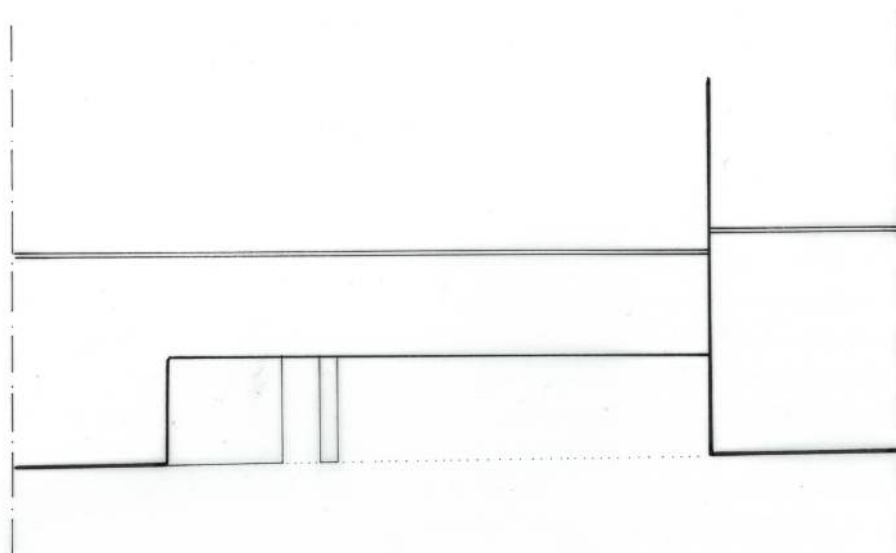


Fig. 2.2.137  
Linkage-Entrance 3 partial elevation.

### Framing the Linkage-Entrance 3

The façade is crossed by the linkages and these perforate the façade, creating a unified entrance presented as a portal like in the two previous linkage-entrances. This is a discrete portal in comparison with the other two portals sitting within the podium.

The drawing of the façade at 1:500 scale could only take the line of the portal delineating the entrance, the fold of the façade where the portal starts, the line defining the podium which is a constant line in all drawings, defining the public zone and of interaction of the pedestrian. These are all generative and bearing lines, but at this scale for instance, I could not draw the quartering of the stone of the façade which dictates the location of windows and window shops. Therefore, a fragment of the façade was drawn at 1:200 as there is a limit to how much a drawing can take. I had to test whether the bearing-generating lines take a different meaning and role, becoming a multifaceted limit with different roles contested and reflected differently, at different scales. The detail of a fragment of the portal at 1:10 but also at 1:50 and in section reveals that the thick line delineating the opening in fact supports the structural load from above. This is reflected with a steel profile with a double function, delineating the portal and becoming the edge of the stone. Thus, the scale to which I draw determines the frame-the view- of the limit and this will change when I change scales. The bearing and generative lines may or may not remain, but they have diverse meanings and roles revealed at different moments, displaying their temporality and their fluctuation.



*Fig. 2.2.138*

Diagram of elevation of Linkage-Entrance 3 framing and as portal.

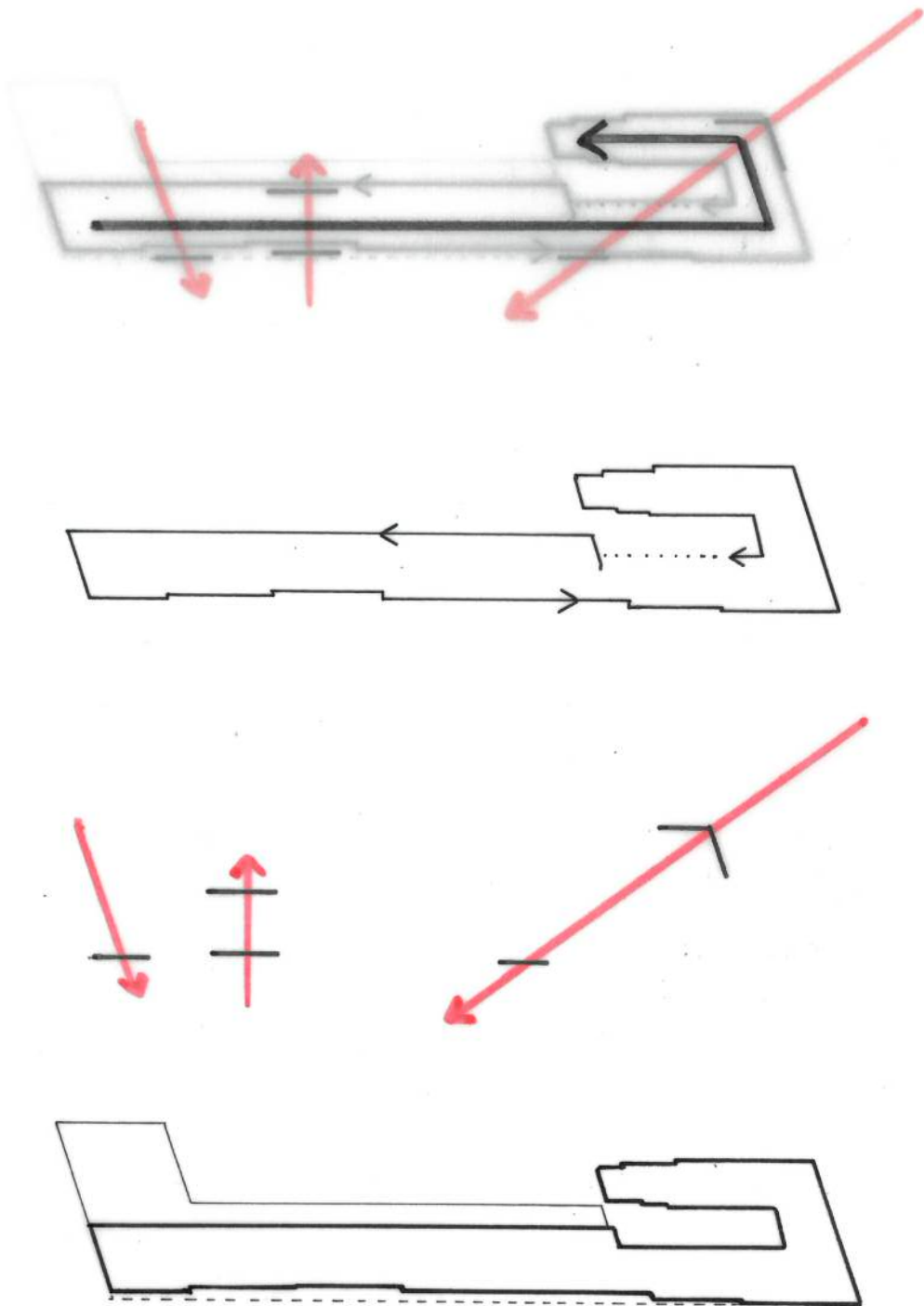


Fig. 2.2.139

Building as limit: Building as line (top); Line making space for (centre, top); Lines intersecting and integrating (centre, bottom); Building envelope (bottom).



## Summary

The delineation of this case study has shown the *Avinguda Diagonal*, the superblock, *L'illa Diagonal*, and the linkages-entrances as limits. These sit in between conditions, seeking to mediate while keeping their own characteristics and identity. Thus, they reveal their double nature as both *limes* and *limen*, that join and cause disjunction but which manifests with a unique balance fluctuating in space and time.

This was revealed with the multiple representation of the *Avinguda Diagonal* as avenue, providing structure to the city, area and access to the superblock and *L'illa Diagonal*. *Avinguda Diagonal* as limit (2.2.61, 2.2.66) was represented with a line generating a link of two points as well as cutting across the territory displaying its double nature both joining and causing disjunction. However, this line also bears as it is affected and determined by the “things” it is crossing; from the topography to the urban fabrics and incidents as open spaces, streets traversing it and land uses to name but a few (2.2.66). Thus, this line bears and generates directly related to the contestedness and reflectiveness of the limit (2.2.63, 2.2.64, 2.2.65). Moreover, the incidents at each side of the limit are diverse, inferring an asymmetry to the inhabitable strip and determining the double limit. The strip fluctuates along its length and width as it crosses “things” and it changes through time modifying and influencing the bearing and generating. It discloses an ambiguous strip that over and over seeks a fine balance within and between the attributes. The representations are a frame and a moment, far from encapsulating these fine changes but the act of drawing and time in drawing allows for reflections and understanding of these dimensions and the *modus operandi* of the limit.

The sections at *L'illa Diagonal* and the typical section through the original portion of the *Avinguda Diagonal* (2.2.68-2.2.69) reveal a limit willing to join in its cross section contrasting with this limit drawn at a larger scale that displays more as a separator. Hence, in the change of scale the limit is revealed differently. In this representation, this limit is a broad strip unfolding two double limits containing multiple lines. Some of these are generator lines that do not coincide with a physical line and are drawn with dashed lines. The mental juxtaposition of these two representations and others would present how this unravels at smaller scale displaying the multifaceted limit that it is multi-layered and multi-dimensional implicit in the notion of the topological limit.

The superblock associated to the *Avinguda Diagonal* and the residential area to the south reveals itself as a limit and in a similar manner to the *Avinguda Diagonal*. This both links and separates urban fabrics; a wide avenue and a tight street, commercial and residential, and each scale reveals a mutation on the limit, one complementary to another. These mutated limits are part of the network of limits proposed by the geo-political thinkers revealing the topological notion of the limit. At the city scale it displays as a line with certain thickness and with simple content, linking in one direction and separating in the other. This quickly changes when moving into the neighbourhood and block scales. The volumes and land uses that comprise the superblock (2.279, 2.2.90) are disposed to mediate, yet also to separate and to create the superblock's own identity as entity and limit. It seeks a balance between the forces from the *Avinguda Diagonal* into the residential area and superblock and vice versa, and from the superblock to the other two. Thus, the dynamics of these forces contest and reflect the superblock as limit, resembling the reflections on the frontier presented by Eugenio Trías. Hence, the superblock is the result of these forces displayed at the neighbourhood scale, block scale but it also has informed the building and human scales. The proposed volumes defining the limit were influenced by the adjacent urban grains and their shadow redefined the limit supporting asymmetry, fluctuation and ambiguity (2.2.78, 2.2.82, 2.2.83). The limit is also determined by the positioning of the land uses within the superblock but also within the buildings (2.2.79, 2.2.90) and these are influenced by the surrounding land uses. The linkages crossing the superblock (2.2.92) position the volumes in relation to the surrounding. These translate into entrances at the building scale (2.2.93) transforming the limit once again, bridging scales and disclosing the double nature of the limit as *limes* and *limen* and the other associated attributes.

*L'illa Diagonal*, while part of the superblock, mediates this, with the *Avinguda Diagonal*, the interior of the block and the residential area. The façade onto the *Avinguda Diagonal* has been represented as a limit revealing the sky as well as presenting itself to the Avenue and mediating with the pedestrian (2.2.88, 2.2.93, 2.2.95). This is penetrated by the linkages that create the entrances into the building. The linkages-entrances reveal a sophisticated limit, displaying their double nature with clarity and in a slightly different way in each of the three cases. In these instances, the *limes* and *limen* could be isolated providing an understanding of the multiple lines of the limit and their bearing and generating relating to the contestedness and reflectiveness of the limit (2.2.97-2.2.138). The particular linkage-entrance 3 associated with the atrium reveals the desires and nature of the building. *L'illa Diagonal* is understood as a line that travels along *Avinguda Diagonal*, folding itself to gain presence and strength in order to confront and respond

to *Carrer Numància* and its intersection with *Avinguda Diagonal* (2.2.139).

Consequently, the representations helped to develop the understanding of the working definition of the limit and its attributes. The act of drawing displayed the line as limit, a mark on the territory that joins along its length and separates the territory it crosses. As limit, it makes space for acquiring a thickness, becoming an inhabitable strip revealing a double limit with a double, and initially contradictory, nature as *limes* and *limen*. Most limits at the large scale are revealed as a line and yet, in the change to smaller scale, this acquires a thickness, unveiling a strip composed of multiple lines displaying the attributes of joining and disjunction (*limes* and *limen*) in a diverse manner and degree. It is in the fine and fragile balance between these two where the other attributes take the stage. The binary attributes of reflective and contested is linked in a loose way with the bearing and generating of the lines and referred in the comments alongside the drawings. The strip generates two sides; a double limit displaying a natural asymmetry determined by the degree of reflectiveness and contestedness of it. This case study revealed that the attribute of fluctuation relates to the change of role of the limit at different scales as well to a change due to external forces closely linked to the notion of the limit as topological.

The enquiry of the limit through scales, a basic method deployed by the architect, proves valuable and it is in the change of scale and relations between scales when the limit displays differently. Then, the scalar studies disclose the limit as multifaceted (multi-dimensional, spatially and temporally and multi-layered) with an inherently topological nature. The mapping and implied understanding of the composition of land-uses, urban grains, movement patterns, volumes and so on allowed me to reveal the contestedness and reflectiveness of the limit. Working in plan, section and elevation, with their inherent measurement and scale, allow for a degree of abstraction and conceptualization. However, the lived-experience and descriptions of the limits are embedded within the process of drawing and lead the reflections on the bearing and generating of the lines as well as the displaying<sup>30</sup> of the attributes of the limit. The diagramming requires a higher level of abstraction than the plans, sections and elevations and, in most cases, the diagrams are produced as overlays on top of one of the drawings. Thus, the diagrams are not purely conceptual or removed from the conventional drawings the architect deploys for accuracy, and more importantly, agree with the restriction imposed on the research of representing the limit graphically with the conventional drawing techniques of architecture.

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<sup>30</sup> The term displaying is used on purpose as the attributes have not been drawn per se, in a separated manner but the limit is drawn, and the attributes reflected through the process and the experience of drawing.



On the Limit

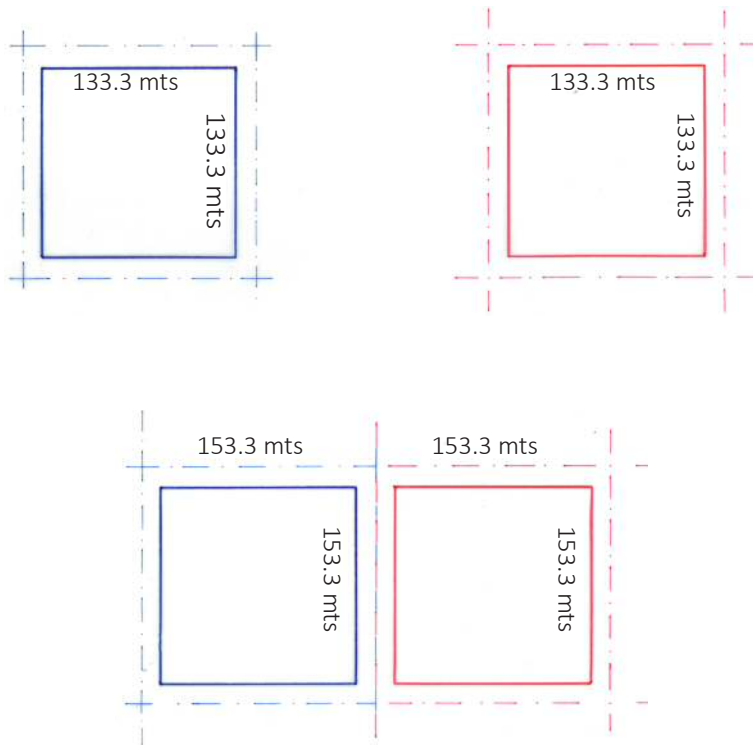


Fig. 2.2.140  
Limits of Cerda street block units (top) and a double limit appears when configured in a grid (bottom).

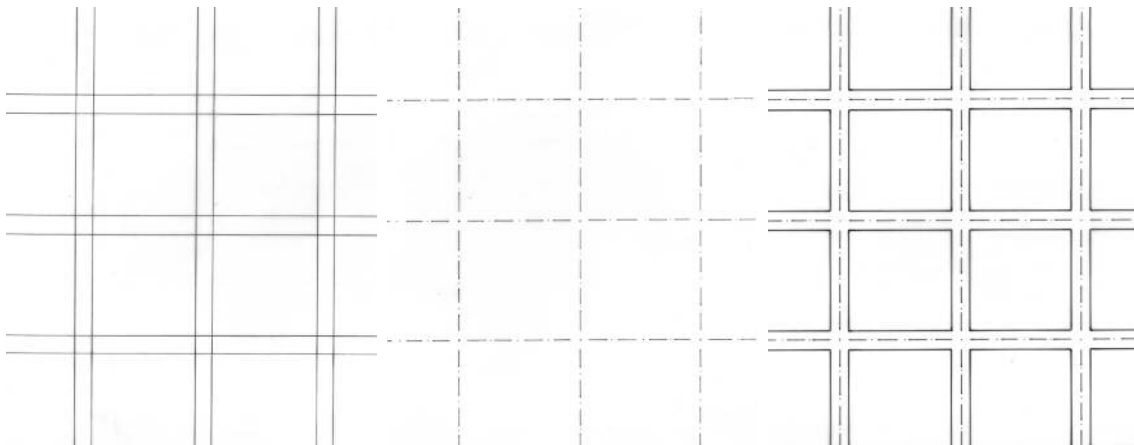


Fig. 2.2.141  
Lines limiting the grid of blocks (left), Axis generating grid (centre), Block and axis limiting and generating (right),

## The Block Cerdà: *Jardins de Lina Òdena*

### From the Axis to the Heterogeneous Reticular i

The city of Barcelona is recognisable from the *Eixample* grid generated from the measurement of the block plus associated space constituting the streets and boulevards: the movement pattern. The typical and basic block measures 113.3x113.3 metres, and sits within the grid with axes at 153.3 metres in two perpendicular directions. when sitting within residential streets.

Thus, the limits of the unit of the block are set at 153.3 metres distance and then, the composite forms the grid. Therefore, the axis is constituted by a coinciding non-material double line. This takes the Heideggerian meaning of boundary wherein a block ends and begins and, in this particular case, there is a double or shared boundary. In section, the axis correlates with the high point of the street camber (*cambio de rasante*), defining the side where the rainwater falls making the axis temporarily visible.

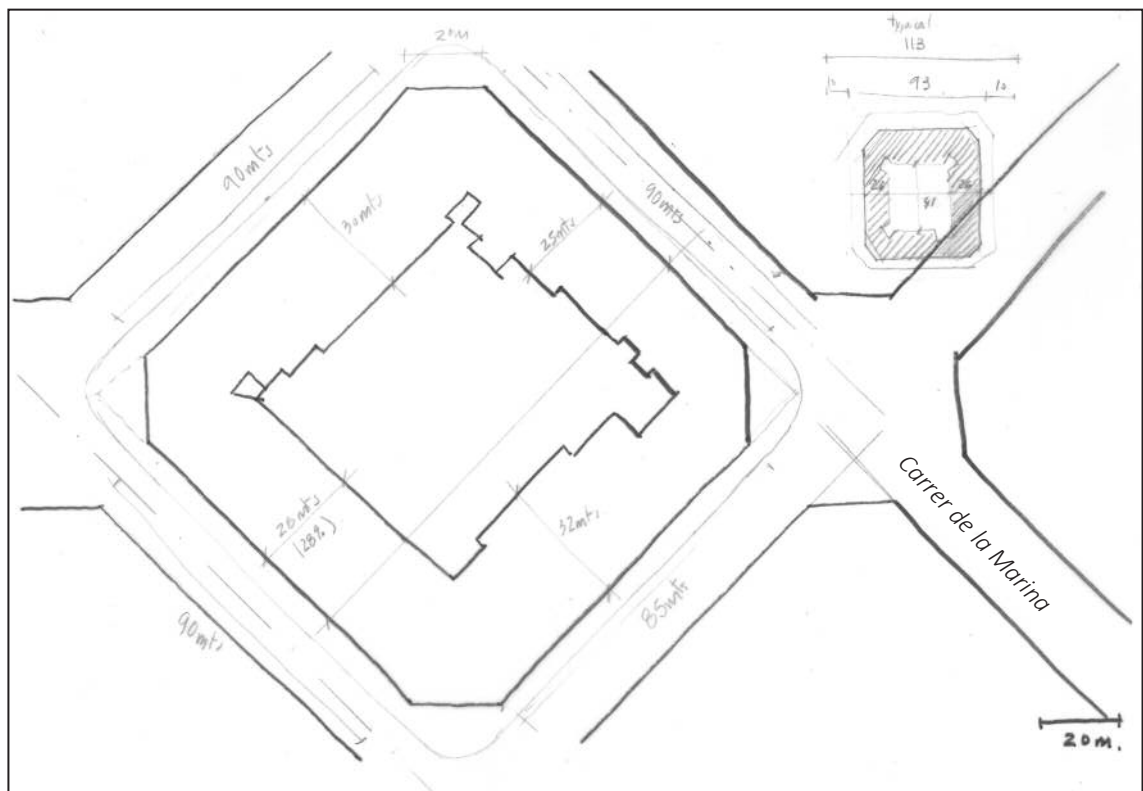


Fig. 2.2.142  
Measurements of *Jardins de Lina Òdena* Block contested by *Carrer de la Marina*.

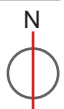
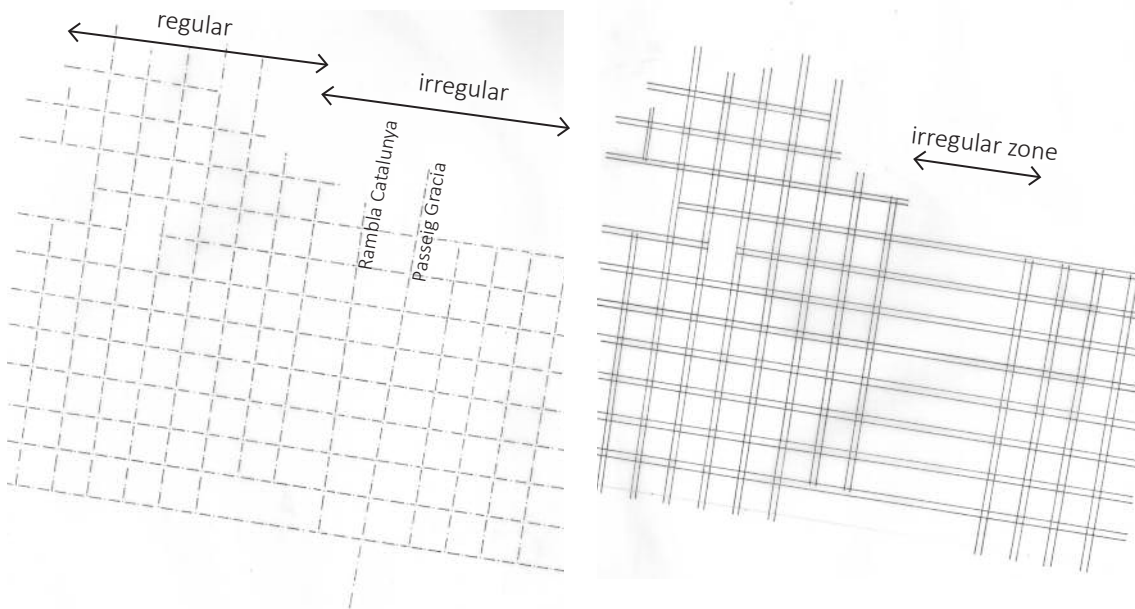




Fig. 2.2.143  
Aerial view taken in 1949 showing some irregularities in the grid pattern.



Contested grid of axes

The grid of the blocks with a gap where the limits do not follow the rule.

Fig. 2.2.144  
Analysis of the grid



### Presence of the Immaterial Line ii

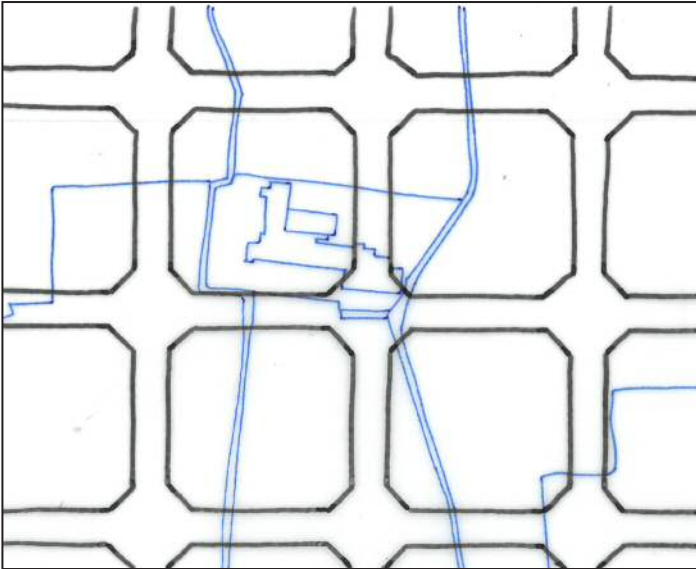
In some cases, the axes do not touch mostly due to external reasons<sup>31</sup> and live side by side, creating a liminal zone or gap (*rambla*<sup>32</sup> or wider pavements) In themselves, these are singularities within the grid providing structure and which make it distinctive. The lines of the grid, as limits, have been contested as well as have reflected the topography and pre-existence. These irregularities are reflected with types of boulevards referred as *Avinguda, Passeig and Rambla*, which are wider than the typical streets and provide singularity. The *Rambla* boulevard type formalises the liminal zone into a pedestrian area where the pedestrian is neither here nor there, but in-between. The limit delineated with a coinciding double line has made space for an inhabitable strip to happen.

This is an in-between like the water of the *Torrent* in the inlet. The middle promenade is a “thing” in itself, different to the pavement and the roadway. The limits created at each side of the promenade are created by it on the roadway in the same way as the water created the shores, limits on the sand (to refer to section-plan presenting this with lines and distances).

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<sup>31</sup> The grid adapts to external and pre-existing conditions. It is the way the grid adapts and engages with the pre-existing settlements or topographic accidents. Thus, the axis are contested.

<sup>32</sup> *Rambla* (etymology; Hispanic-Arabic *rámbla* and classic Arabic *ramlah* meaning sandy area) refers to a temporary river and in urban areas refers to a street with a central promenade/platform with trees for the pedestrians where the water used to run. In many cases the watercourse has been moved when canalised. <<http://www.elcastellano.org/palabra/rambla>> [Accessed 11 November 2017].



*Fig. 2.2.145*  
Juxtaposition of preceding rural agricultural map overlaid onto the Cerdà plan.



*Fig. 2.2.146*  
Constructed perimeter of the block providing a unified façade but formed of many different buildings.

## Materialised Lines 1

### Perimeter Block and its Perimeter i

The perimeter of the block in the Cerdà plan is a geometric line enclosing the area of the block corresponding with the reflections upon the perimeter made by Casey. He defines the perimeter<sup>33</sup> as an artifactual, exclusive limit contrived to linearity.<sup>34</sup> It is determined and constructed of geometric lines defining the outer edge of central mass.<sup>35</sup> In this case the perimeter is legislative in line with one of the attributes of the border and carries a twofold role:

1. This geometric enclosed line separates the inner space of the block from the outer space. The area inside the line is usually private and the outer space public;
2. The regulations identify the perimeter as a built line from which buildings are aligned, called the alignment line. Thus, this line is materialised with the façade and it is where all the buildings composing the block meet.

Accordingly, the grid can be understood and drawn with the unit of the block, its perimeter. Nevertheless, the area, prior to becoming urban, was rural, governed by lines defining agricultural units and occasional paths providing access to the units. The agricultural unit line delineates ownership in a similar manner to the lines delineating the plots within the blocks. The agricultural units had to be transformed into urban plots, hosted within the blocks in a fair manner and the plots were and are associated with regulations defined from the limits. Thus, these two lines have a certain correlation.

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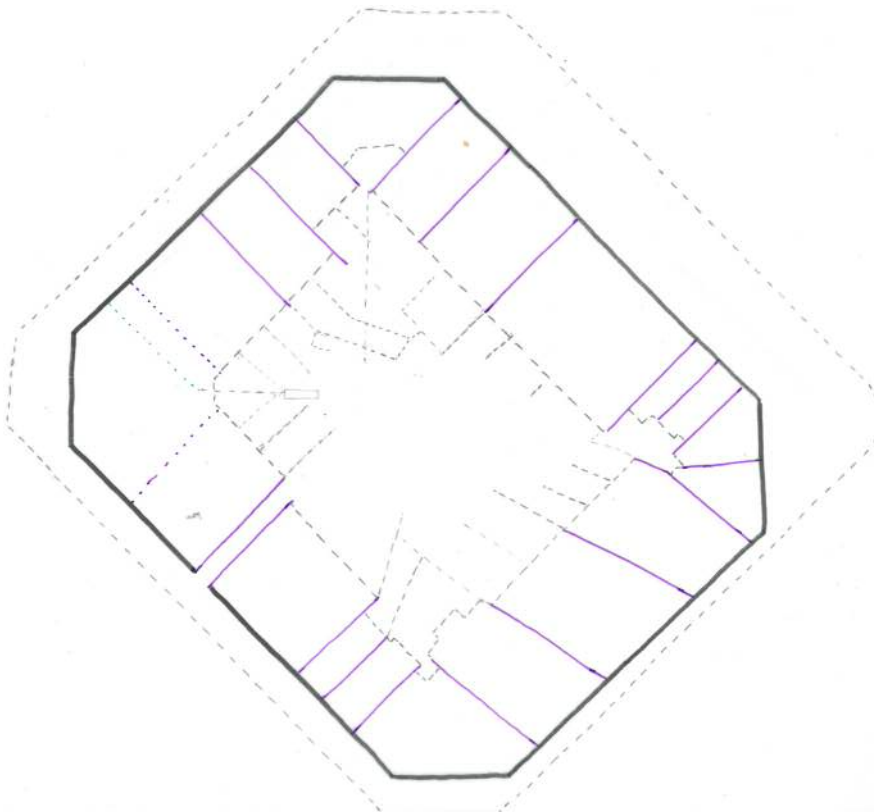
<sup>33</sup> Perimeter (noun): 1.a. A continuous line forming the boundary of a closed geometrical figure or of any area or surface; a circumference; a periphery, outline. 2.b. fig. and in extended use. A ring or space surrounding something; an edge, limit of extent, verge. Synonym to boundary, edge, border, margin <<http://www.oed.com/view/Entry/140948?redirectedFrom=perimeter#eid>> [Accessed 14 December 2017].

<sup>34</sup> Edward S. Casey, *The World on Edge* (Bloomington, Indiana: Indiana University Press, 2017), p.29.

<sup>35</sup> *Ibid.*, p.116.



*Fig. 2.2.147*  
Street view showing the diversity of building façades within a unified perimeter.



*Fig. 2.2.148*  
Block defined by the thick perimeter line that receives the party walls and these relate the inner and outer façade, hosting and homogenising.



**Perimeter Line of the Block as a Mediator ii**

The block includes multiple ownerships and occupancies partially revealed on plan by lines that act as borders defining the plots. These lines demarcate, delimit and define; they are reflective. These are precise, and once decided, are still, impermeable and continuous as well as aporetic and instrumental in character.

These border lines may not be perpendicular to the continuous perimeter line, but all plot lines intersect, end and cut the perimeter line (acting in a reflective manner) into segments of varied width. All plots within a block have one side on the perimeter of the block defining and forming a segment of the façade. Formalised, hence contested by the perimeter line, the façade is constructed of segments, each of a slightly different height without exceeding the height established by the regulations. Each segment of the façade is perforated with windows and doors providing access, light and ventilation to the inner space of the block; and these openings will be slightly different in each segment.

Consequently, the perimeter line is not only transgressed by the perforations but has allowed for the segments forming the line to have a degree of singularity. Thus, the perimeter line, once formalised by the façade, becomes a border with porosity and vagueness due to the multiple subtleties at play.



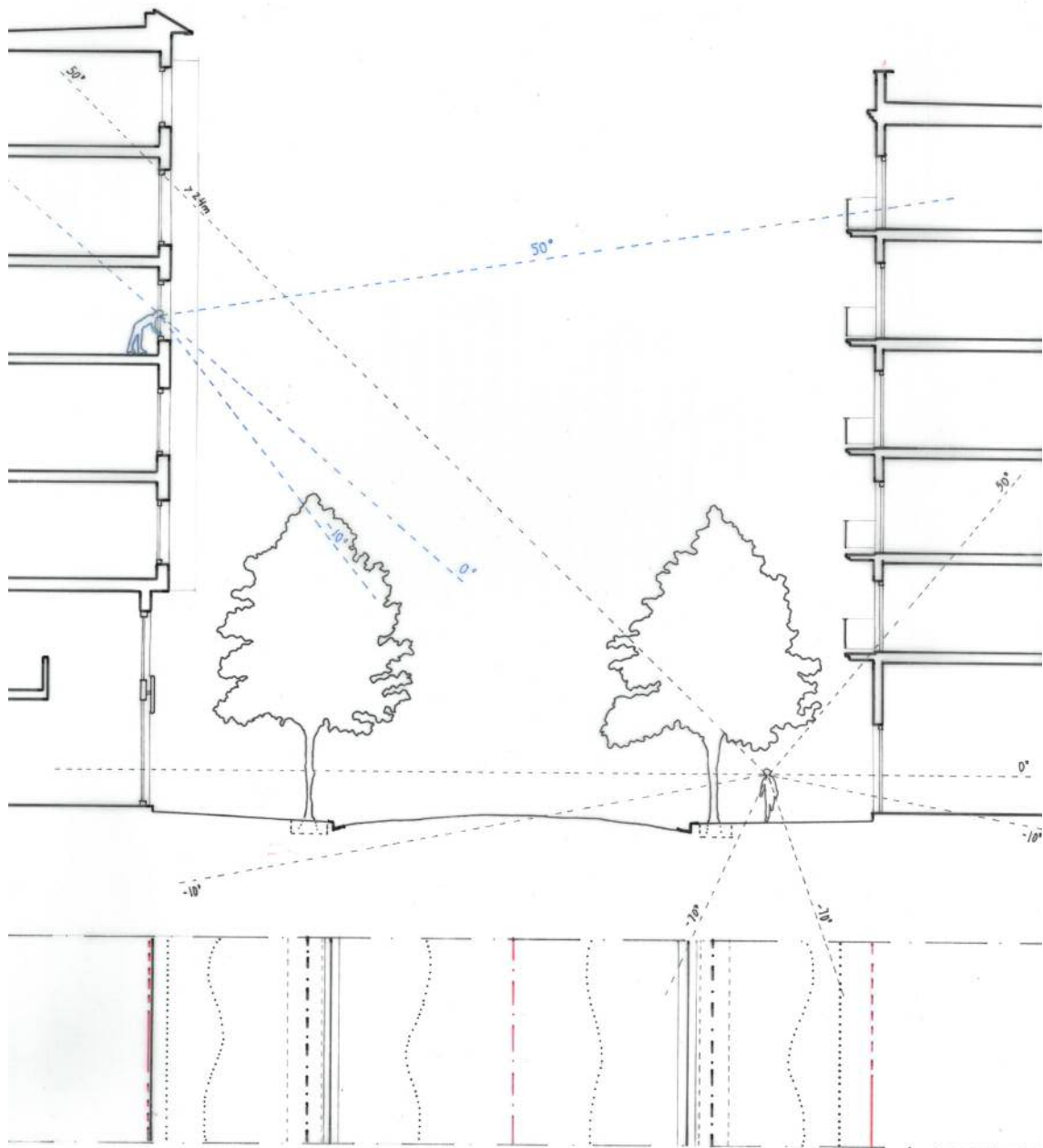


Fig. 2.2.149

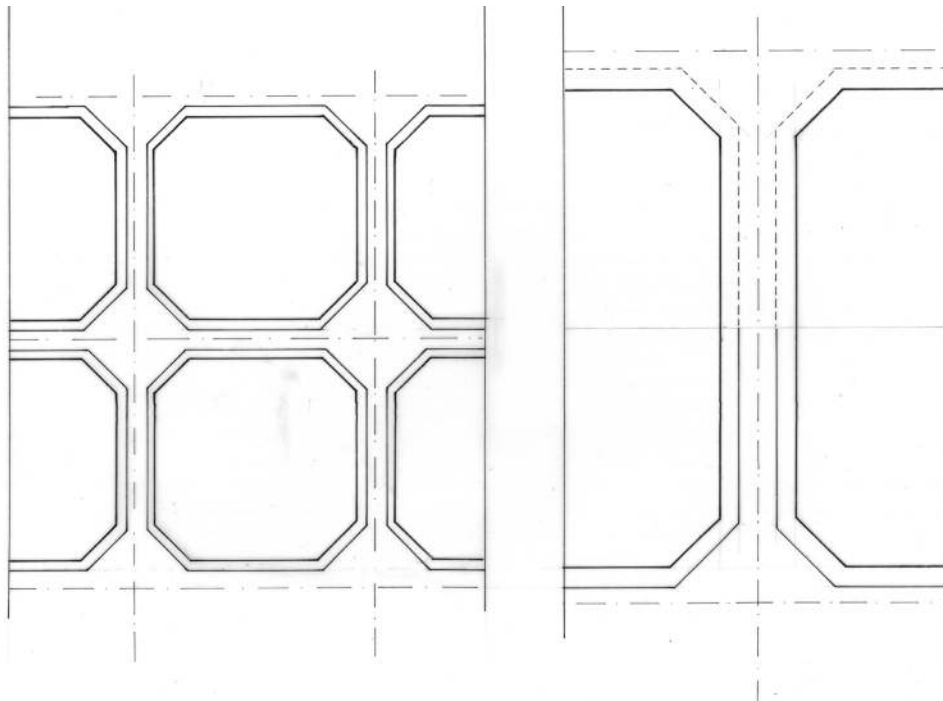
Typical street section of a façade with the view lines of the pedestrian and resident, and delineation of limits on plan.

### Perimeter Line of the Block as a Mediator iii

The initial simple perimeter line defining and separating the private and public domains and spaces is revealed to be a complex line where the two domains encounter and are mediated. The pedestrian in the street simultaneously perceives the unified monolithic façade as well as the plots with their particular perforations providing rhythm and inviting him to overcome it.

The inhabitant dwelling in the inner private space behind the façade interacts with it differently compared with the pedestrian. For him, the openings provide lighting and ventilation and, on some occasions, help decide where to sit, work, or eat. These may contribute to creating the atmosphere of the inner space, going beyond functional requirements.

The perforations of the façade also provide access and connection to the outside, but in a different measure and manner to the opposite direction displaying asymmetry. The private domain is selective and engages with the public domain in a controlled way, differing between individuals, collectives and cultures. The perforations are operated with windows or doors that may be overlaid with shutters and/or curtains operated by the inhabitant. The resident can look through the window into the public domain or open the window “lining” over. The pedestrian from outside may be able to see through windows if curtains and shutters have been opened. It is likely that on different days they will be able to see different interiors providing a continuously changeable limit. To get access into the building and thus cross the façade, the pedestrian needs to get permission or deploy a key. On the contrary, the resident can cross the façade just by opening the door without any control apart from the door. Additionally, balconies are hung from the façade flying over the public space sporadically in a measured way, physically blurring the clean cut between public and private. Then, it reflects on the street and presents ambiguity. Thus, this boundary works like the membrane of a cell with an idiosyncratic and selective relationship in each direction, as Sennett describes in his essay *The Open City*. This boundary is no longer simply a line. It is an asymmetrical, fluctuating and ambiguous strip that separates and unites and reflects and contests. It defines and is defined by relationships and categorised by human habitation, starting to reveal its topological nature.



*Fig. 2.2.150*

Diagram of Eixample grid showing street blocks, showing 1:1 ratio of space allocated to footway and carriageway (equal split for road users and pedestrians).

### The Kerb as a Boundary iv

Cerdà defined the street profile as dedicating equal space to vehicles and pedestrians correlating with the 1/1 ratio of pavement/roadway. In a typical street, the roadway sits in the middle of the section with the axis defining the middle point and ridge. The pavement surface is divided in two and each sits alongside the side edges of the roadway.

Thus, the grid initially drawn with the axis can be represented by the visible lines where the roadway and pavement meet, i.e. the kerb.<sup>36</sup> This is a thin line initially drawn by the urban planner. In section, this is an edge resulting from the encounter of two exposed faces of the kerb to resolve the level change between roadway and pavement.

Once I zoom in, the kerb acquires a thickness and a few lines need drawing alongside the identified edge to represent the mediation between the roadway and the pavement for easy movement between the two sections. It reads as an element due to its specific role, plasticity and materiality. Its role is to separate for functional and safety reasons the roadway assigned to the vehicle from the pavement dedicated to the pedestrian. The plasticity of the kerb is revealed each time this adapts, allowing it to be physically traversed by pedestrians or/and vehicles and to ease the crossing the kerb acquires wider thickness. The kerb, represented and read first by a line and edge, has become a boundary defined by a strip that at some points separates and at others connects by changing and adapting in width and shape showing a considerable level of variation. This boundary is characterised by human interaction, but it takes on some of the attributes of the border as one of its sides is precise and constant; it is instrumental and most changes correlate with functional needs.

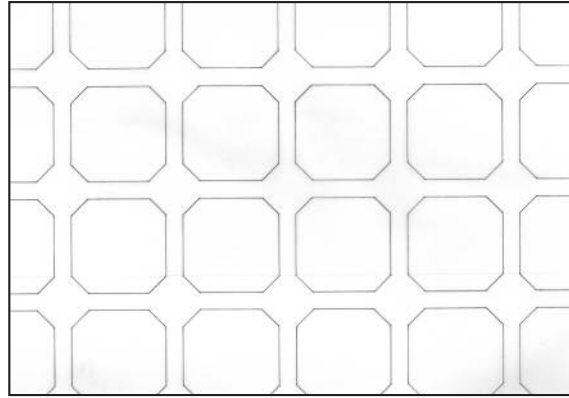
Different lines are drawn differently. Some are thicker representing a change of level, while a change of material with no change of level is represented by a thinner line. Thus, the drawing codifies lines with an inherent degree of abstraction and groups them, as it would be illegible if the lines were different and this works towards abstraction plus conceptualisation.

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<sup>36</sup> Kerb (noun) defined as "An edging of stone or the like, bordering a raised path, side-walk, or pavement" <<http://www.oed.com/view/Entry/102991?rskey=qyxULv&result=1#eid>> [Accessed 21 December 2018].

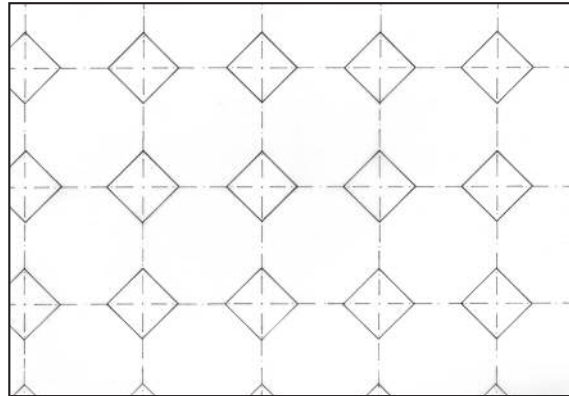
*Fig. 2.2.151*

Grid defined by the block with chamfered corners inferring uniqueness and identity.



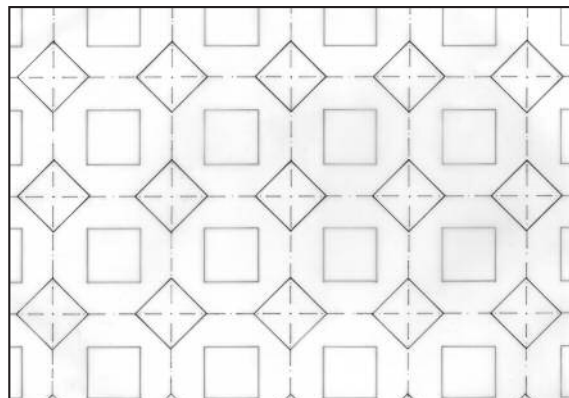
*Fig. 2.2.152*

The grid defined by the axis as a double limit presenting the placement of the space created by the chamfers.



*Fig. 2.2.153*

The grid defined by axes with the space created by the chamfers and the inner open spaces. The spaces of opportunity for the city.



*Fig. 2.2.154*

Aerial view of the grid.



## Figure - Ground of the Grid

### **Chamfers of the Block i**

The peculiarity of the Cerdà block or the *Eixample* lies in its chamfered corners that allow for an alternative understanding of the grid and its limits. The perimeter of the blocks is chamfered, and the kerb of the pavement mimics it, making them coalesce. Hence, the pavement is an in-between, between the block and the roadway in its own right. On the one hand, the kerb is fused with the block making the pavement and the block part of a whole but on the other hand the pavement is part of the street; space between buildings is designed for circulation and provides access. This reading derives or is clear from the figure-ground mapping of the trilogy of the block, pavement, roadway, able to modify sets of boundaries or borders. So the pavement is understood as a space-in-between bounded by a boundary along the kerb and the façade at each side.

Fig. 2.2.155

Ideal grid defined by the inner open space.

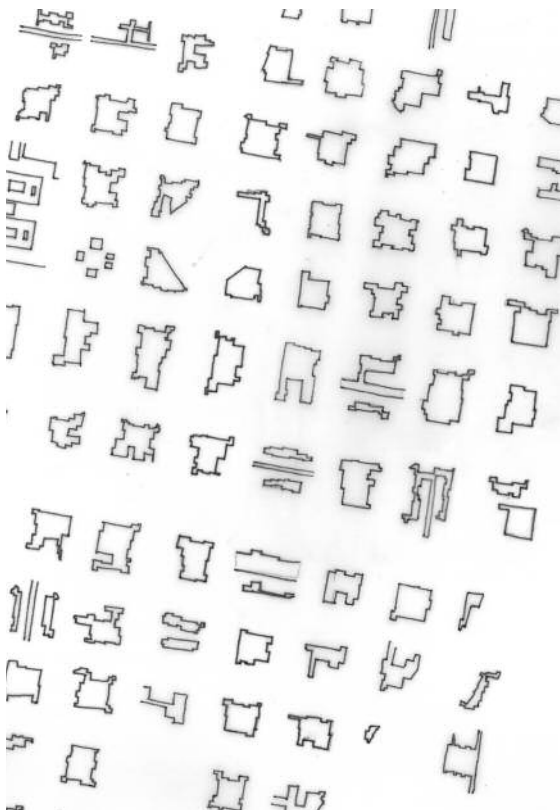
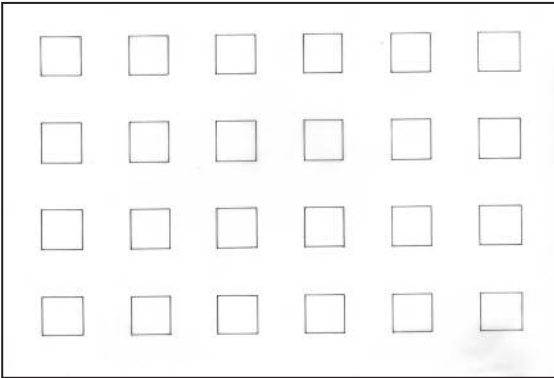


Fig. 2.2.156

Grid defined by the resultant open inner spaces of the blocks. Mapped on aerial view.

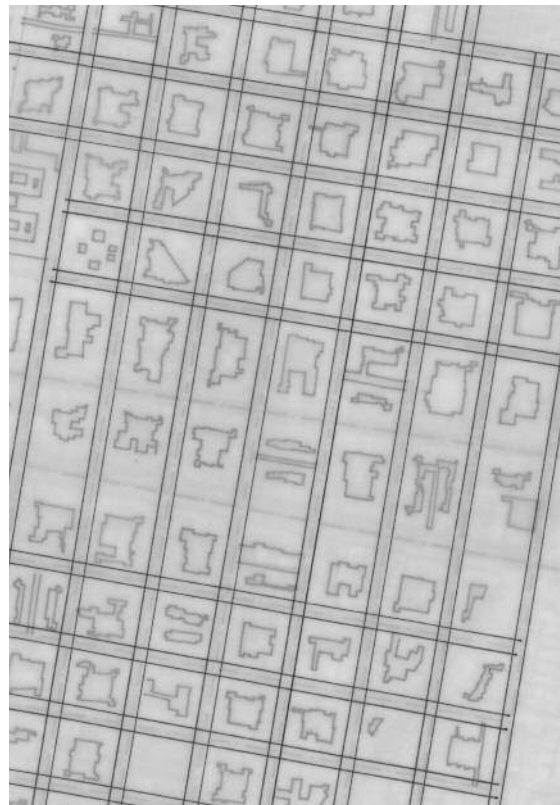


Fig. 2.2.157

Grid defined by the alignment of blocks and their characteristic private inner open space.

### **Inner Open Spaces of the Block ii**

Alternatively, the grid can be defined by the open spaces inside the blocks. The inner line defining the void differs from the one planned by Cerdà, being irregular and variable in each block but at this scale this is not perceived as important. My eye reads the point defining the centre of the block as the opposite to its boundary.

Initially the grid was delineated with simple lines to be imposed in the territory. Nonetheless, as these were re-drawing they display as limits reflecting the kerb, street, block mainly locating and these were contested by the topography and pre-existances. It is understood that the axis of the grid-the limit and line- made space for displaying the attributes of the limit. This can also be said of the line limiting the kerb and the block. The line limits separating but it also seeks to join and in some cases to mediate determining the other attributes. These, as limits, reflect on other limits and are contested by them resulting in disclosing what they concealed. In this manner they reveal their topological nature.



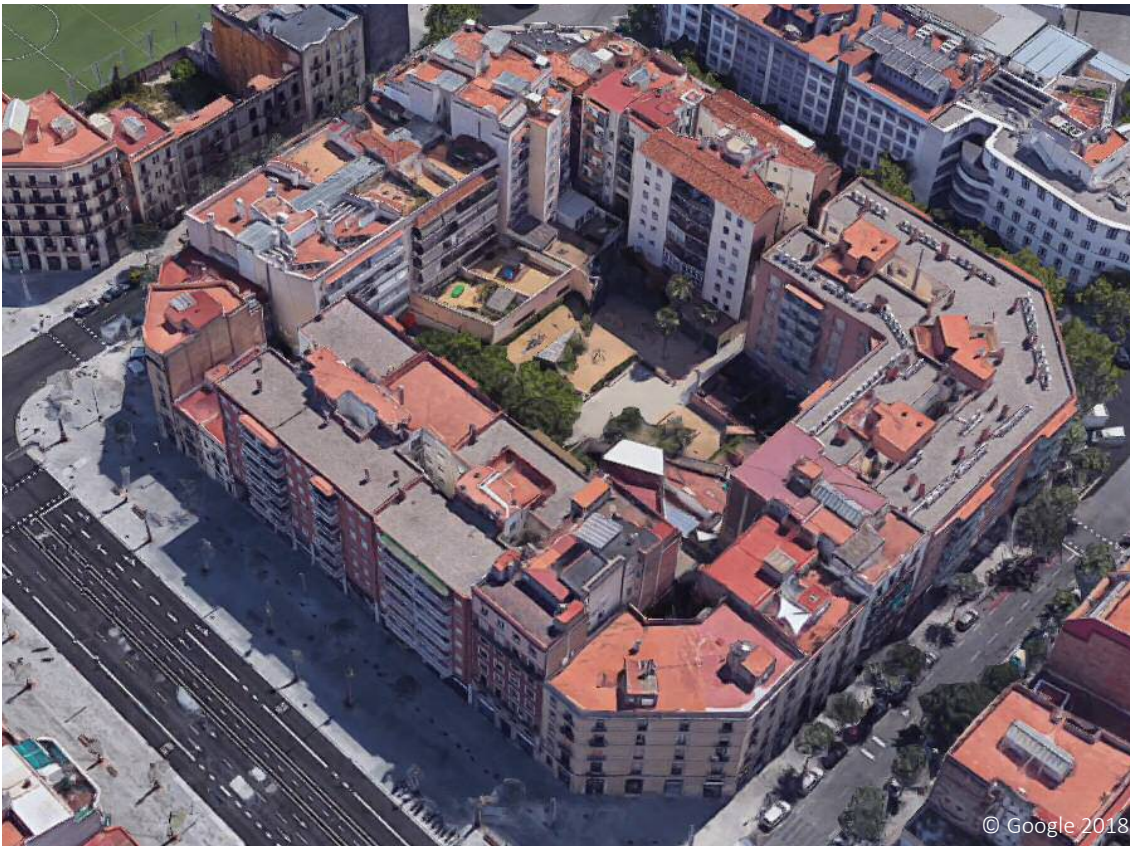


Fig. 2.2.158  
Aerial view of the *Jardins de Lina Òdena* from *Carrer Marina*, redesigned and redeveloped in 2009.

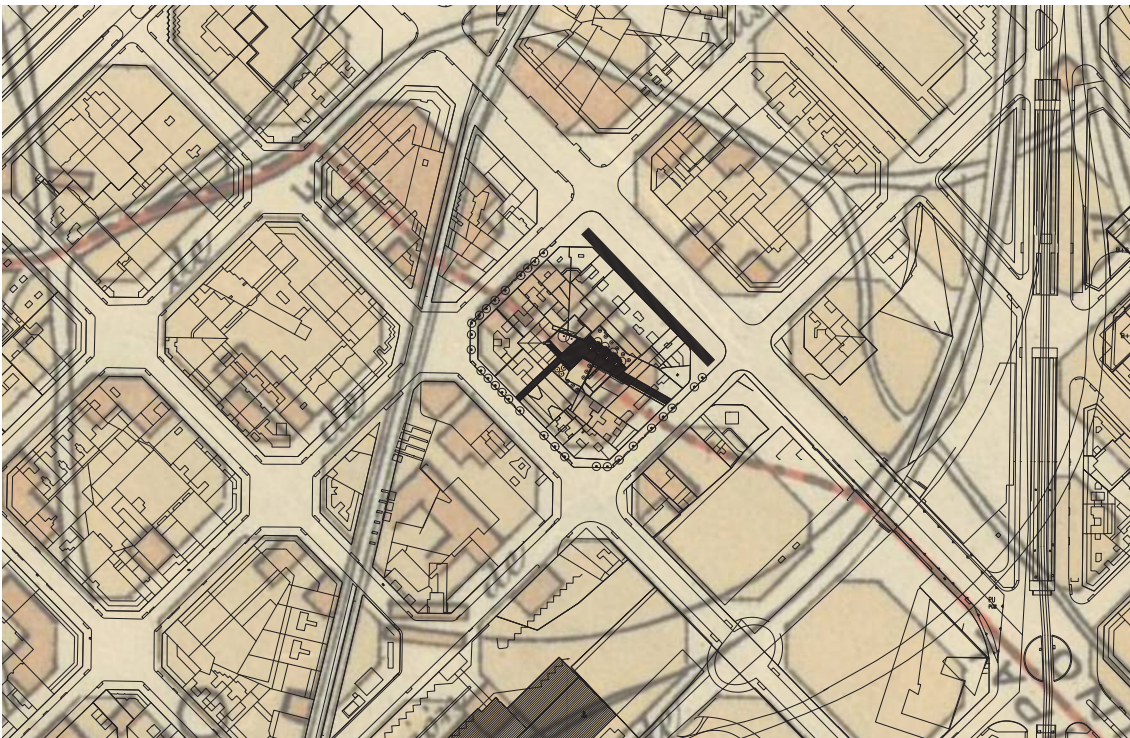


Fig. 2.2.159  
Juxtaposition of current layout and 1891 map, showing the old municipal limit crossing the block.



## *Jardins de Lina Òdena*

### **Five Limits With Different Remits and Implications**

The aerial view shows the perimeter block *Jardins de Lina Òdena*, where the building mass has great presence holding the *Jardins* in its interior. It is presented by the pavement within the grid. The five limits delineating the street-block (axis of the grid, kerb, outer line of the block, inner line of the block and inner wall of the *Jardins*) have some presence and these will be subsequently presented with the exception of the axis. The axis was already discussed as the generator of the grid and the same applies to any block of the grid.

The bottom image presents the juxtaposition of the historical map dated 1891, showing in red the old legislative limit between the territory of Barcelona and *Sant Martí of Provensals*, that used to cross the street-block that is the subject of this case study. This limit also appears on the map dated 1933, formalised as a street crossing the block and named as *Carrer de los Ángeles*.

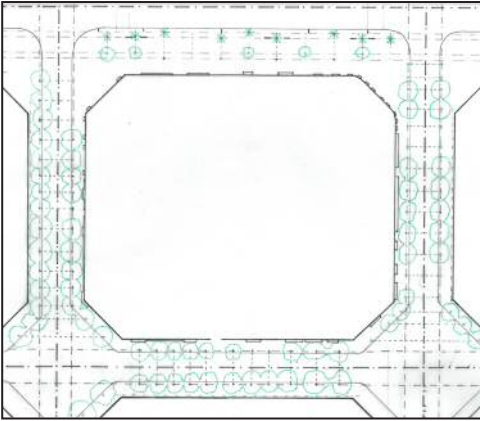


Fig. 2.2.160  
Kerb located by the axis of the grid and the line of the block.

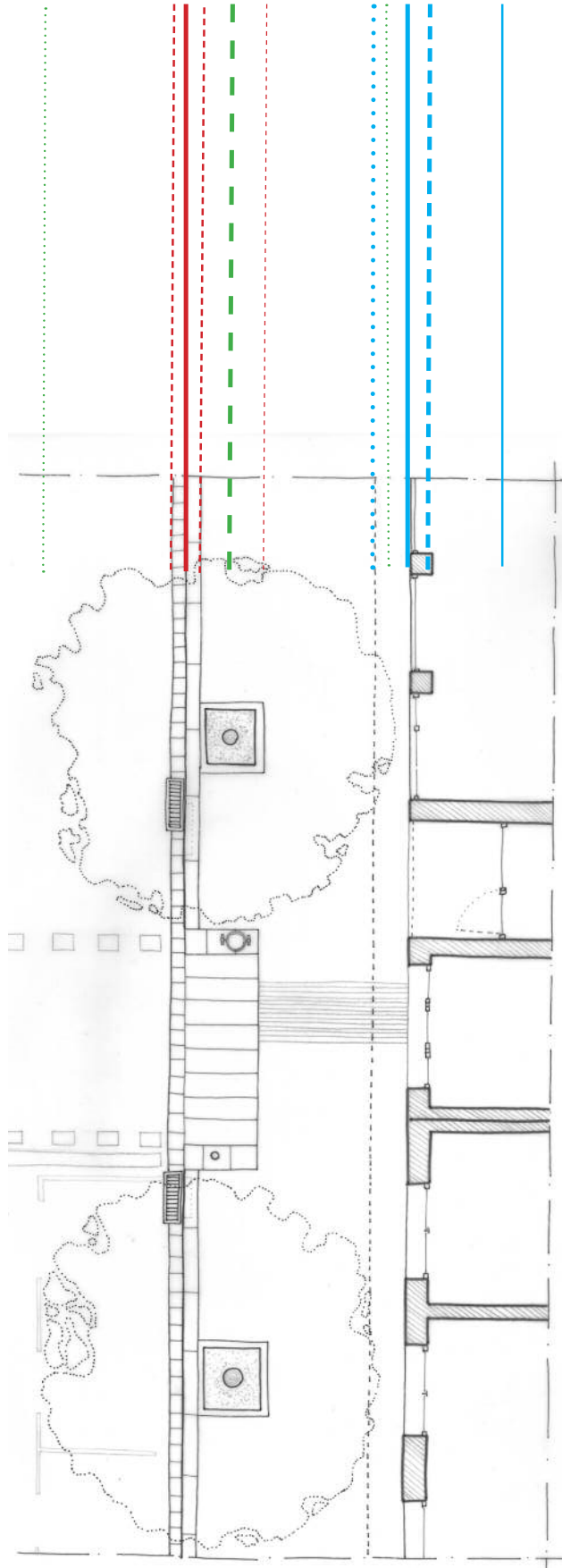


Fig. 2.2.161  
Limit of the kerb configured with multiple lines, shown in red.

### The Kerb as Edge-Boundary

The kerb as edge-boundary has already been discussed and this is not any different. This edge-boundary is located by the line of the block and the axis resulting in a double limit. Due to the way the edge-boundary is represented the perimeter line of the block is an offset of the pavement and as a result of this operation a strip is generated, in-between.

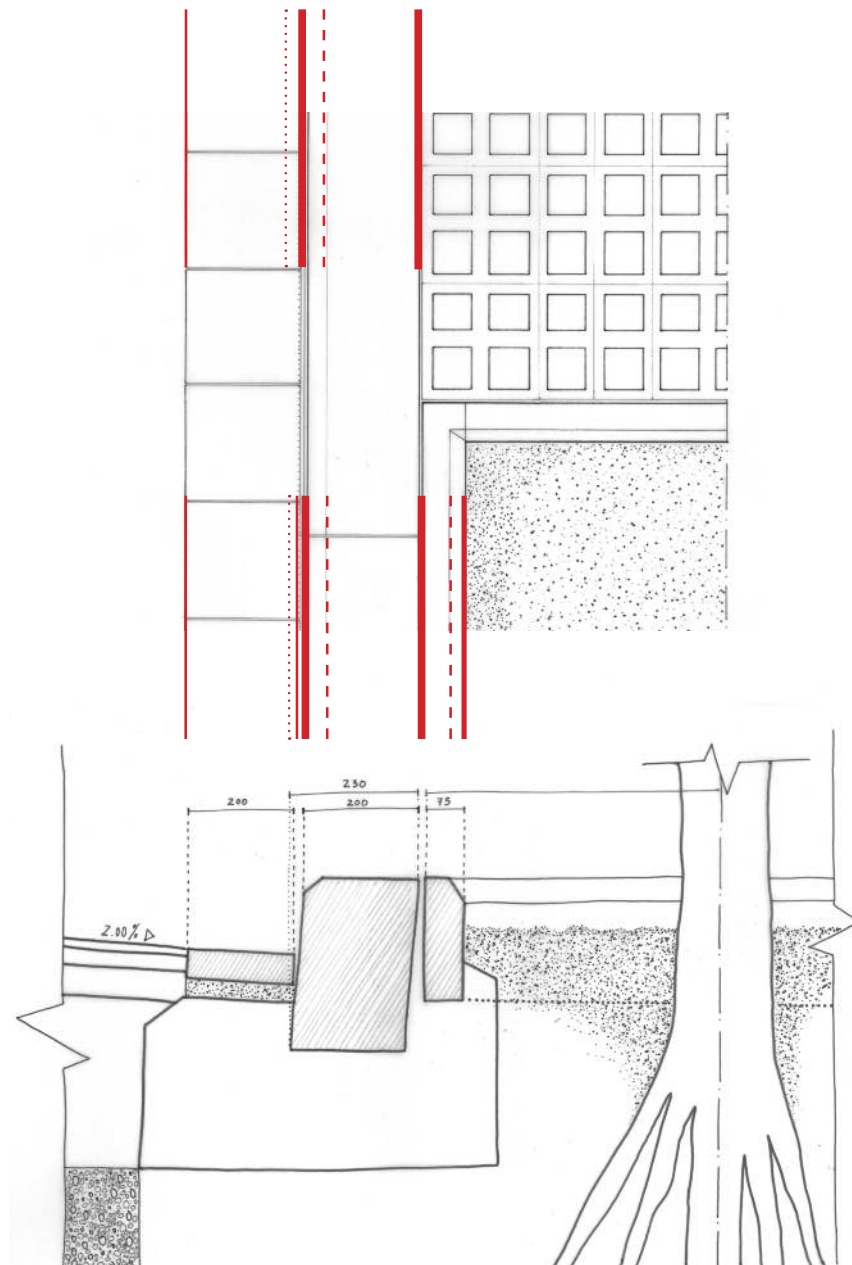


Fig. 2.2.162

Multiple lines of the limit: Detail of the kerb in plan and section.

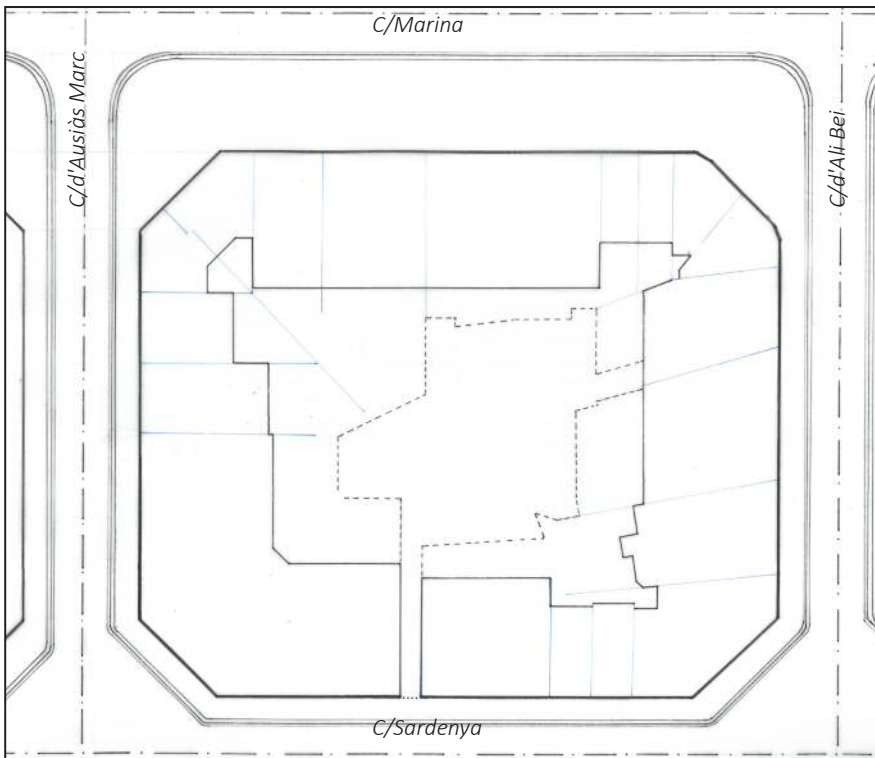


Fig. 2.2.163  
Plan showing perimeter-boundary in bold as part of the street-block.



Fig. 2.2.164  
Discontinuity on Carrer Sardenya in the line of the block providing access to the Jardins.

**Line of the Block as Perimeter-Boundary i**

The perimeter-boundary line of the block is the limit perceived by all and this as perimeter, boundary and border was discussed in 'Perimeter Line of the Block as a Mediator i, ii and iii'. This line is clear as in the other blocks but with the peculiarity of a discontinuity in *Carrer Sardenya* which reads as a gap, providing access to the inside of the block. There is a second access to the inside of the block but the facade is only discontinued at ground floor level and reads as a perforation, as part of the facade.

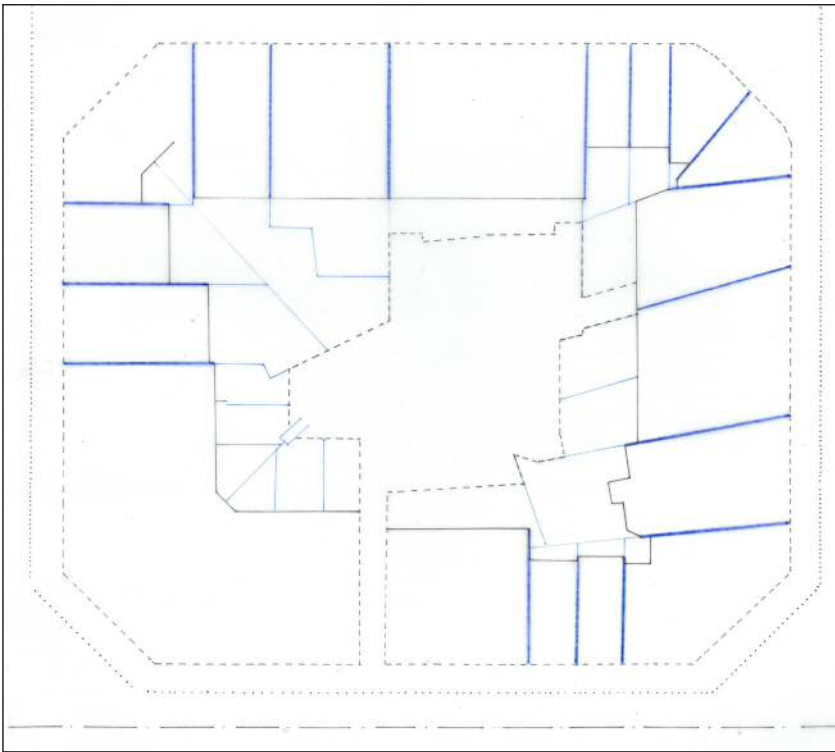


Fig. 2.2.165  
Border lines marking ownerships in blue.

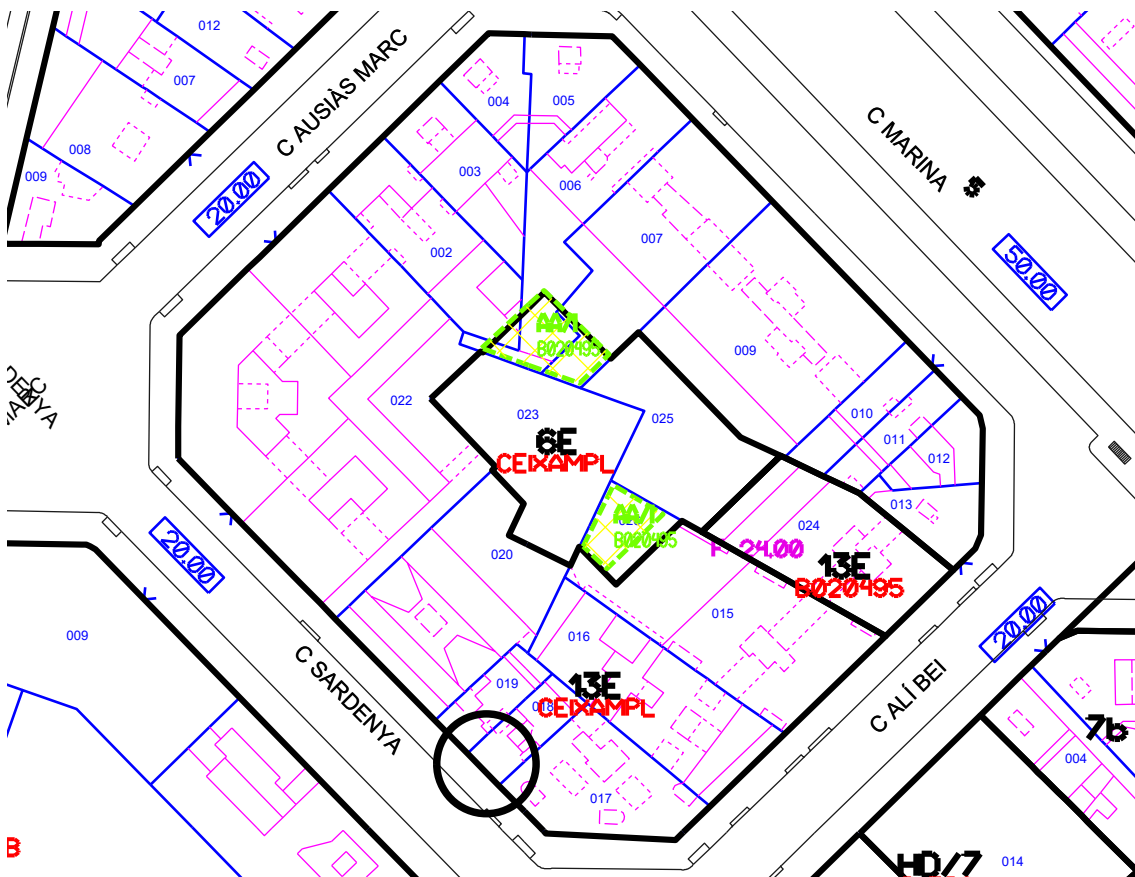


Fig. 2.2.166  
Block Jardins de Lina Òdena. Map showing legislative lines and property numbers.

**Line of the Block as Border i**

The perimeter-boundary line of the block receives and contains the dividing lines of the block in plots represented in blue crucial to the parcelling map (*plano parcelario*). The plot lines start at the perimeter-boundary line of the block, cross the limit of the inner façade of the block (where buildings end in the inside of the block) and end at the inner wall separating the private and public domains.



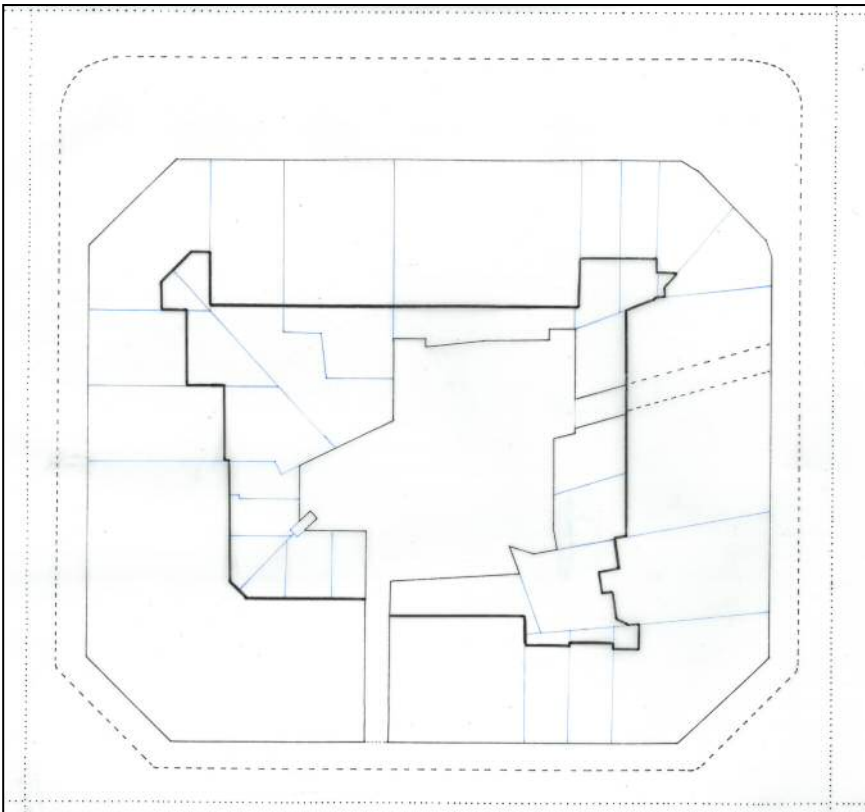


Fig. 2.2.167

Thicker line delineating the inner façade of the block positioned by the outer façade of the block and the wall of the *Jardins*.



Fig. 2.2.168

The image above shows a portion of the distant inner façade, as viewed when the visitor is located in the centre.

Fig. 2.2.169

The image to the left shows the inner façade where the domestic domain meets the recovered public open space, which used to be privately owned.

**Inner Line of the Block as Perimeter Boundary and as Rim**

The inner façade represented with a continuous line is irregular, in contrast to the simple geometry of the perimeter-boundary line of the block. The perimeter-boundary line, representing the block façade and these lines are limits to the same thing containing and relating them intimately. Therefore, the two façades work as an asymmetrical spine, but the inner façade for the visitor to the *Jardins* is more a border than a boundary whereas for the resident it is more a boundary than a border as it is experienced and inhabited differently. As the perimeter-boundary line, this inner façade reveals the plots and supports the plot lines. This inner façade for many of the plots was designed as a functional membrane (back façade) instead of a façade to be viewed from below. This is reflected in the way the limit of the inner façade is located by the contrasting regular line of the perimeter-boundary line and the wall determining the end of private properties.

In experience the inner façade takes a relevant role delineating the sky limiting the "there" and framing the "over there". This happens at the rim, coinciding with the delineation of this limit in plan, but not related. The section discloses this and it is presented in 'Views and Territoriality', which follows.

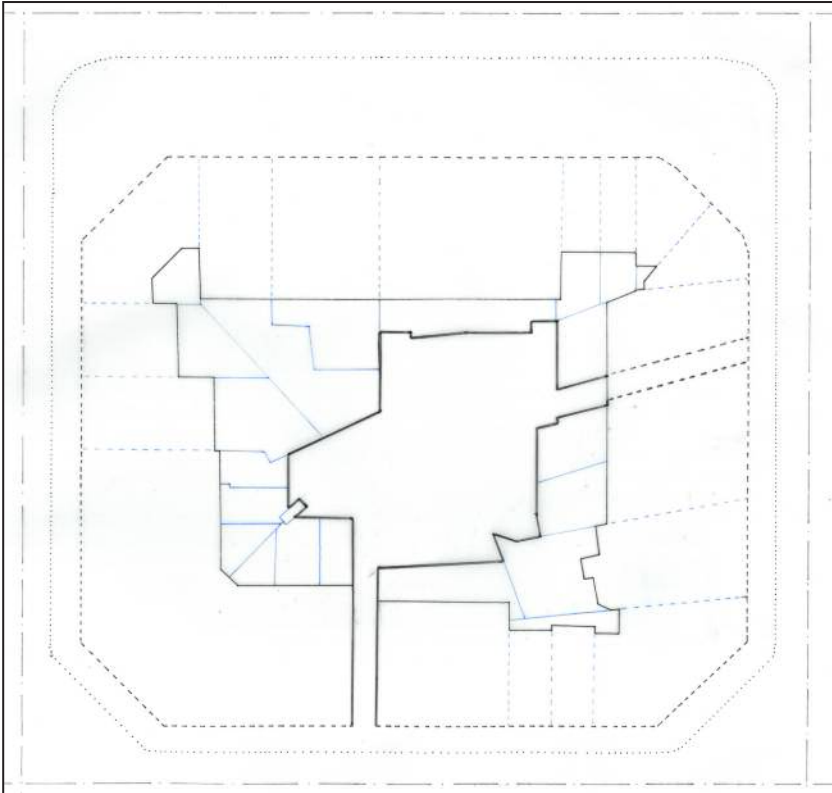


Fig. 2.2.170

Delineation of the inner wall of the *Jardins* as perimeter and positioned by the inner façade of the block.



Fig. 2.2.171

Inner wall of the *Jardins* and its rim presenting the liner façade



Fig. 2.2.172

Inner wall of the *Jardins* and its rim presenting the liner façade

**Inner Line of the Block as Perimeter-Boundary-Rim**

The fifth limit correlates with the innermost wall that limits the private space from the public space. This wall makes space for the *Jardins*, an oasis for the neighbours. This line is located by the line of the inner façade and follows a similar geometry. This wall is drawn as a perimeter though for the visitor, physically it is a boundary as it is an end, but visually a border presenting what it is beyond it.

The visitor to the *Jardins* always perceives and experiences the inner façade in relation to this wall. It sets and presents the inner façade through its rim appreciated in the two images to the left. This line bounds space and is the outermost part of the *Jardins*, a rim that can only be transgressed visually, not physically but able to place.

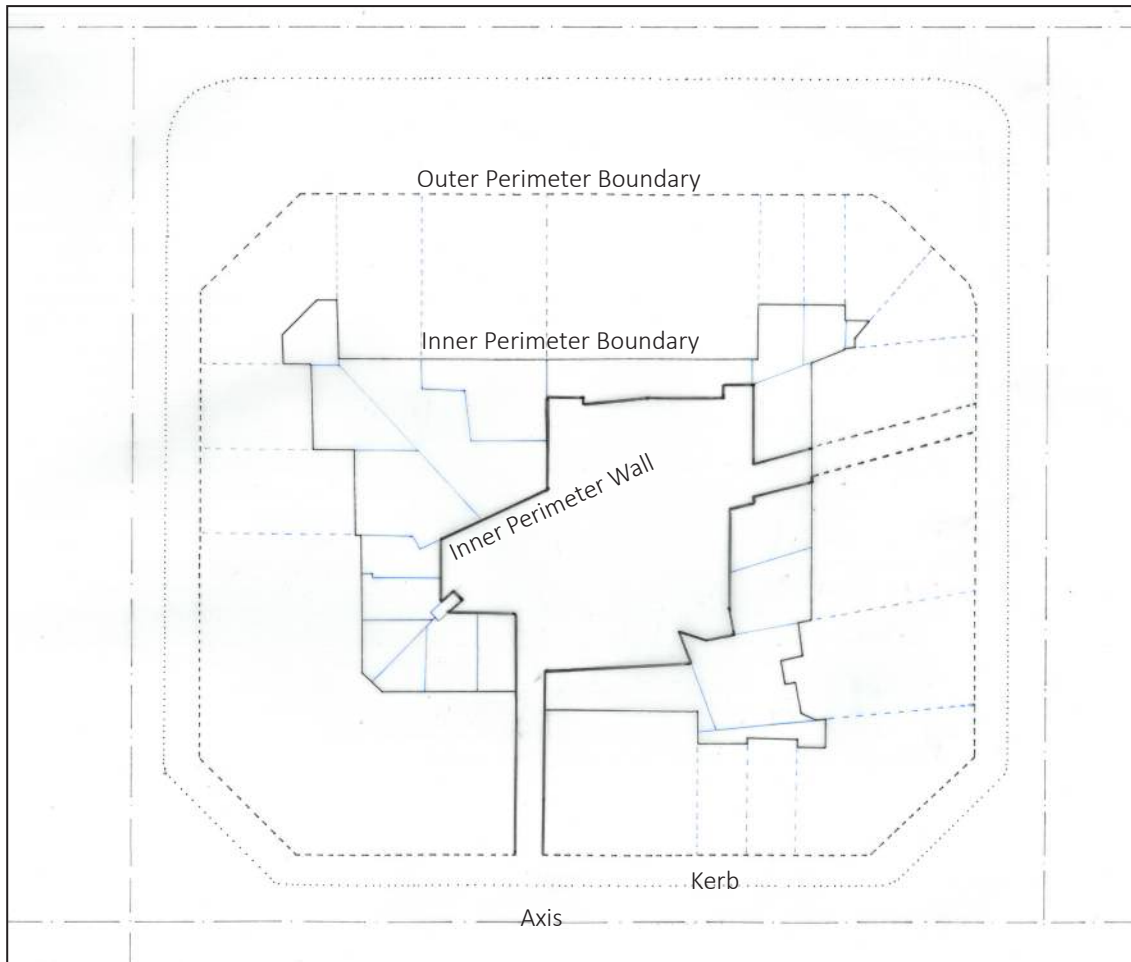


Fig. 2.2.173  
Juxtaposition of the five limits.

**Juxtaposition of the Five Interdependant Limits**

The juxtaposition of the limits presented shows the strength of the perimeter-boundary line of the block prevailing over the other limits. This limit is the building line, where public and private meet and works with the inner perimeter-boundary/border of the inner façade containing an in-between. The two edges of this in-between work in an asymmetrical manner and with different intensities.

Each of the limits is delineated by a line that bears and generates and they are interrelated contesting and reflecting each other in a topological manner. Thus, the block is constituted by a defined number of limits delineated as simple lines, where the majority act as boundaries, whilst others are more like borders, edges or perimeters.



Fig. 2.2.174

Photograph taken after 2005, but before 2009 when the public open space was further increased.



Fig. 2.2.175

Photograph taken after 2005, but before 2009 when the public open space was further increased.

**Limiting The *Jardins*: Making Space For.**

Not many years ago, this block was like any other Cerdà block where the façade was the only visible element facing the public domain and from which to access the inside private space. The middle of the block was originally proposed as green and public space by Cerdà, but was then privatized and the different plots composing the block were taken over and utilised by the ground and first floor owners. Thus, the current *Jardins* are the result of converting private land placed in the inner block back into public open space and providing access to it. Most of the buildings of this block date from earlier than the 1990s, except for two large plots that were previously integrated with many much smaller plots redeveloped in the late 90s or 2000s. These provided two entrances to the inner open public space, one from *Carrer Sardenya* through a passage open to the sky and the other from *Carrer d'Ali Bei* through a covered passage crossing the building. The resulting space accrued in two different stages.

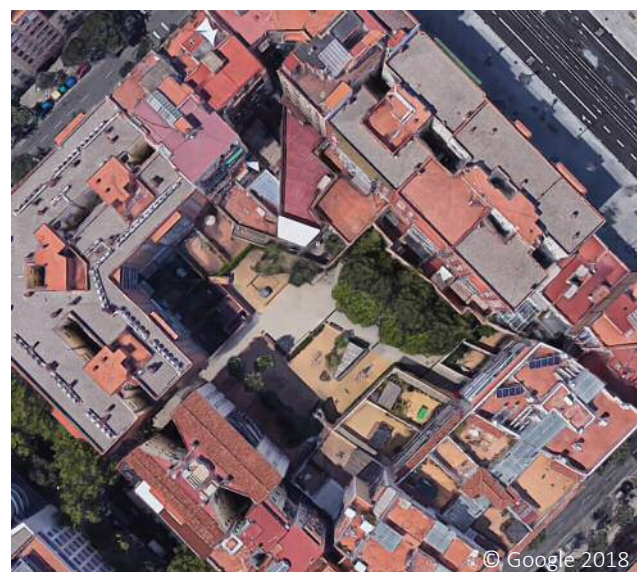
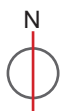


Fig. 2.2.176  
Aerial view of block





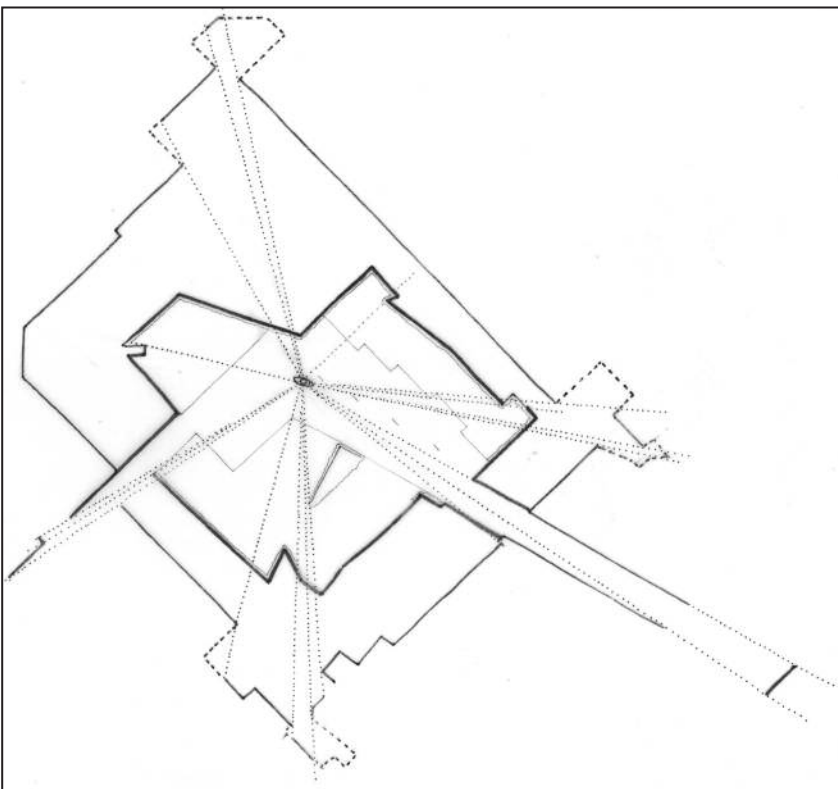
*Fig. 2.2.176*  
View inside open inner space.

The two photographs show how the perimeter-boundary wall is composed of old painted walls or new walls exposing the material with no treatment.



*Fig. 2.2.177*  
View inside open inner space.

This perimeter-boundary wall contains and presents the inner façade. This wall articulates the inner façade that defines the horizon and I, the visitor.



*Fig. 2.2.178*  
The diagram shows the visual limits the visitor experiences.

In this diagram the perimeter-boundary is located by or locates the inner façade and the spaces within the inner space.



### From a Perimeter to a Visual Boundary ii

The wall acts as a perimeter bounding the *Jardins*<sup>37</sup> associated with the idea of the vessel characterised by the edge when this is materialised. This starts and ends on the perimeter-wall and physically, I cannot overcome it. It is made of party walls, and the ones belonging to the most recent developments expose their rough material, brick. The older party walls are painted in a cream colour and keep their original heights and textures. The perimeter wall is unified by the painting and a layer of planting that wraps it. This added layer consists of a trench of soil which accommodates a climbing plant and any variations in the width of the trench are due to the conditions of the perimeter itself or the material meeting it on the opposite side. Thus, this perimeter wall once drawn as an element in its own right is not represented simply by one line but by a few and a strip is displayed. The edge of the wall still has the idea of the perimeter (separating), and viewed from the middle it retains the strong feeling of being in a vessel displaying the asymmetry of the perimeter. But, on the ground where the wall meets and mediates with the ground floor, the attributes of the perimeter and vessel can be questioned.

From the initial study of the structural limits of the block, the perimeter wall was placed by the inner façade. When drawing the plan of the *Jardins* in its context, the perimeter wall is a hinge articulating the inner façade that serves as a backdrop. Between the visitor and the wall, there may be other immediate limits and the wall is the backdrop. Hence, the wall is much more than a perimeter due to how this has been treated, defining our reading but also due to its crucial role of positioning the viewer working as a hinge. The representation of the wall reads as a perimeter but also agrees with some of the definitions of the border, as it demarcates and defines, is continuous, aporetic, precise, still and instrumental in defining public and private space. Nonetheless, through drawing, features of the boundary are disclosed. The wall takes more than one role. It defines the *Jardins* but also belongs to the plots, is visually permeable, it changes and defines human habitation. It is a functional element that seeks to be the backdrop on which to project things and make relationships displaying a topological predisposition. Thus, the wall as limit contests and reflects and its delineation by the line bears and generates.

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<sup>37</sup> Area of 1319 sqm, access via *C/Sardenya 172* and *C/d'Alí Bei, 121*.

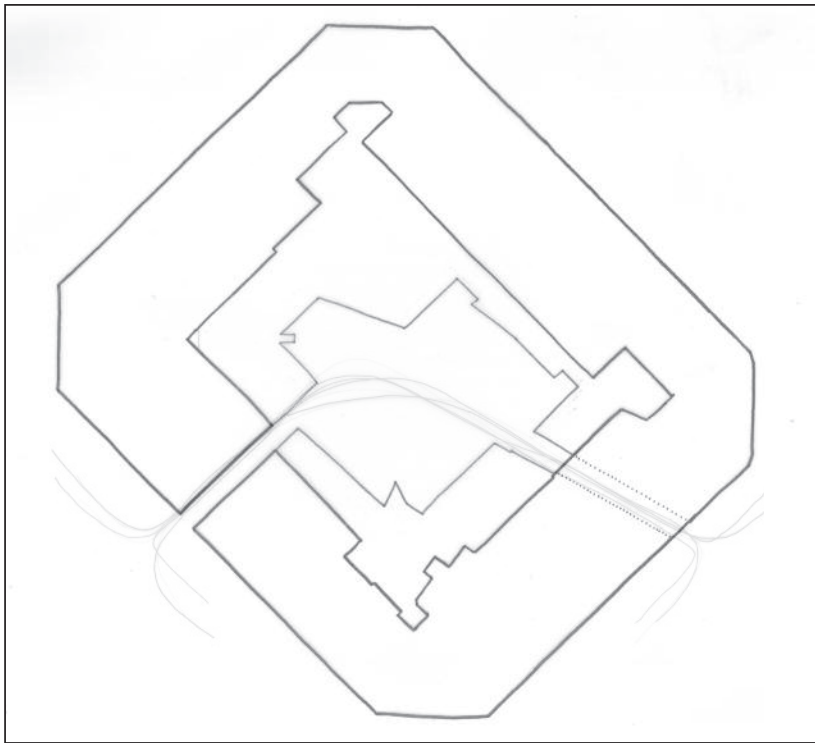


Fig. 2.2.179

Diagram showing the juxtaposition of the desire line through the block and its structural limits (top). Long views from outside of the block to the inside define a direct route, through which the limits are framed (bottom).

## The Generator of the Design

This section explains the design of this inner open space from the limit. The limits are introduced as layers from outer, distant and more imposing to inner, closer and usually more subtle limits.

### Perimeter/Boundary-Wall Defining Spaces i

The design concept for the *Jardins* is intrinsic to wall. The wall is carefully engineered to become an asset and active in the experience instead of a heavy passive wall. Thus, the design emerges from the constraints: the wall and the directions of the two accesses. The key strategies are:

1. To convert the irregular wall/limit into a simplified and recognisable geometry and shape;
2. To facilitate movement through the block adopting the shortest route.

The route is based on the extension of the two entrances adopting their directions and correlating with the plot lines defining them. As a result, the route is constituted by long lines supported by long views with distant, back and middle grounds offering a sense of amplitude. These long views contribute to the sense of safety as all limits can be reached visually. From the inside the distant outside is seen and from the outside the heart of the inner space is also seen. From the juxtaposition of the route and the wall, three areas become delineated by both. The three are areas to stay, adopting a unique but complementary character and programme and intrinsic to the whole through the wall and the journey. To make the route easy and quick in the intersection of the two long views, a breathing, moving or staying area is created, shaping two of the identified areas in which to stay and play. This area is not the geometric centre but the gravitational one from which the wall can be perceived in its totality.

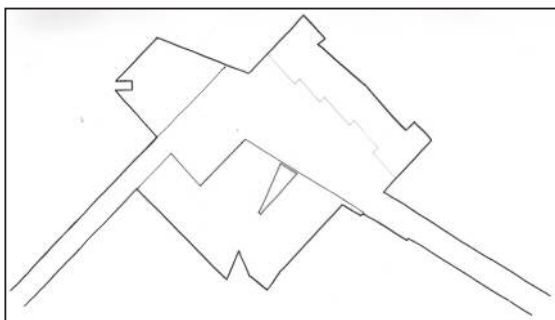


Fig. 2.2.180  
Spaces to stay defined by the line bounding the pavement. At the turning point of the route.

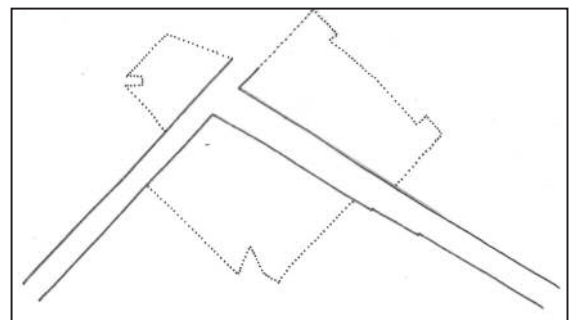


Fig. 2.2.181  
The route delineates the spaces to stay with the perimeter-boundary wall.



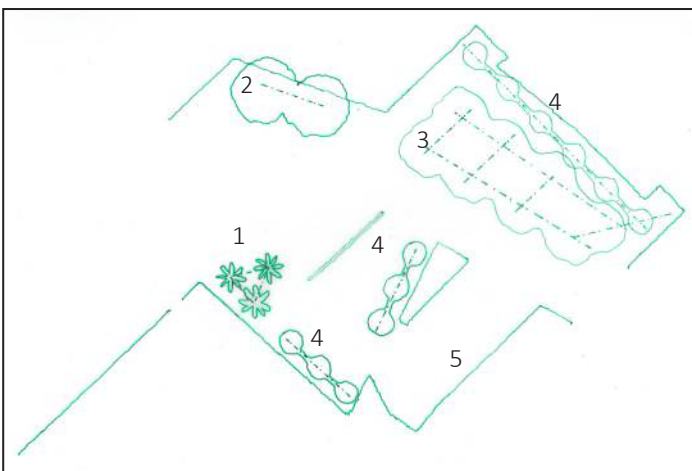


Fig. 2.2.182  
Photographs of tree types and  
location plan.

- 1. Washingtonia Filifera.
- 2. Schinus Molle.
- 3. Tipuan Tipu.
- 4. Brachychiton
- 5. Hedera Helix.

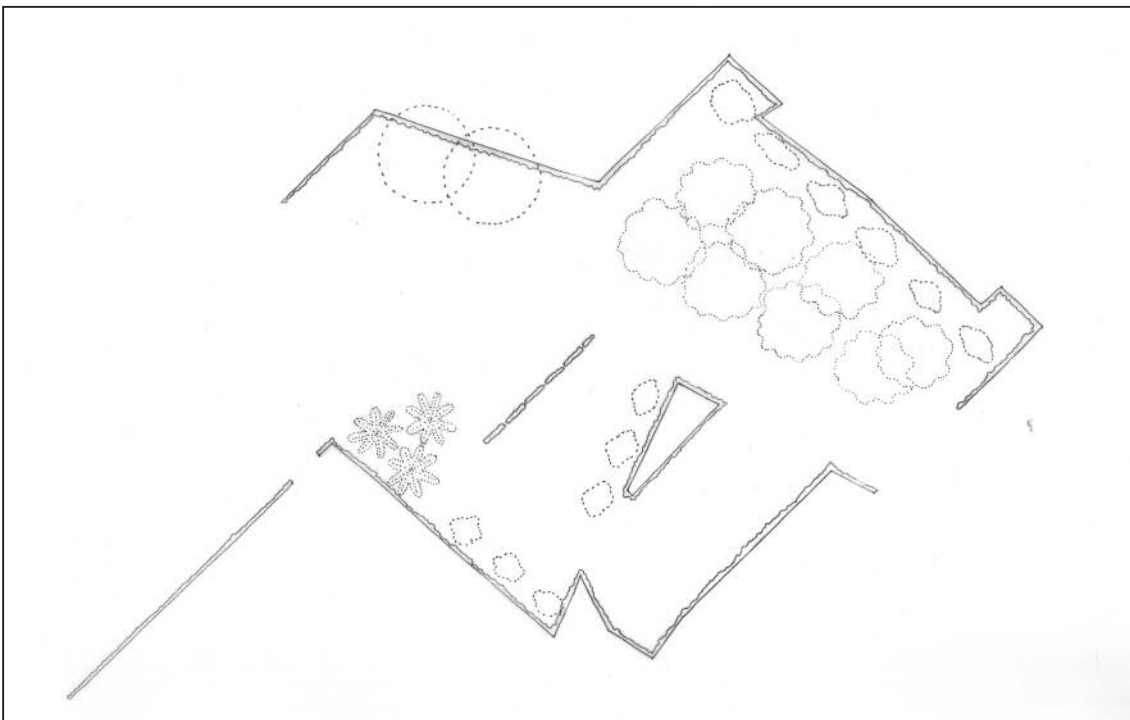


Fig. 2.2.183  
Plan with vegetation that provides order and enhances as well as contrasts with the irregular wall.



### **The Wall and Vegetation Elements ii**

Vegetation is introduced strategically with the aim of working in relation to the perimeter wall or to create areas while providing shading but also a ceiling; delineating space.

- Brachychiton is the type of tree utilised to dress the perimeter and contributing to that limit;
- Tipuana are planted in reticular form to create a space to stay alongside the route;
- Three palm trees are located in a triangle position to mark a spot, a space- Washingtonia Filifera;
- Two Schinus Molle are placed as ornamental trees along a wall that is visible from both entrances;
- Hedera Helix is the climbing plant along the wall and part of the limit;
- Low bushes used lineally along the pavement to define and separate.

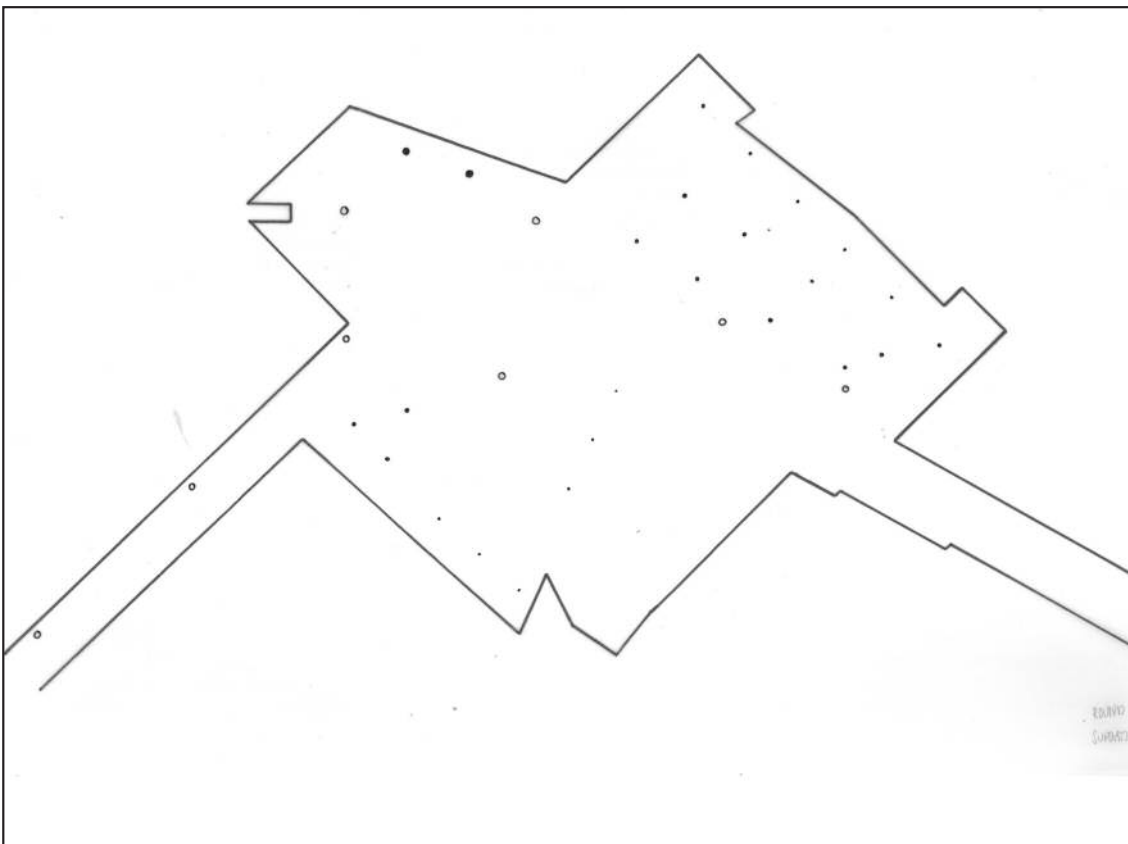


Fig. 2.2.184

Round fixed elements that include lamp posts and trunks of trees. These need the perimeter wall in order to be located.



### **The Wall and Round Elements iii**

The mapping of the trunks of the trees and lamp posts seems random, the order appears when represented with the wall; the limit and in this case the boundary. The space is lit with a measured number of light points: eight lamp posts and three light points hanging from the wall.



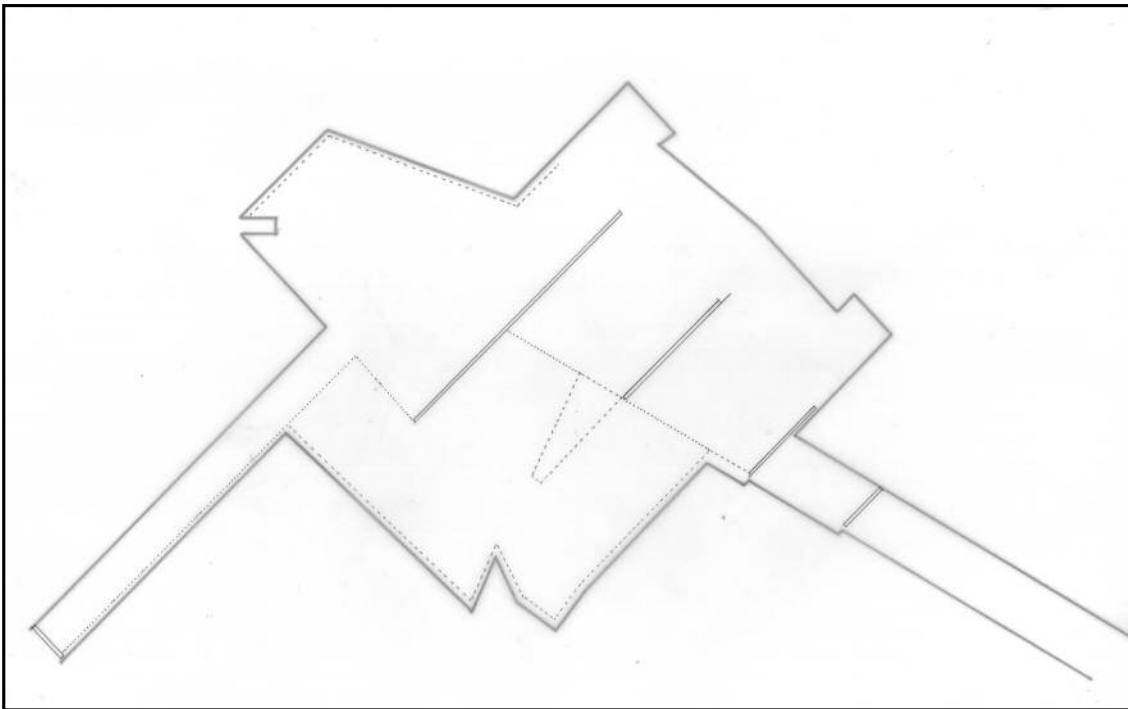


Fig. 2.2.185  
Metal elements.

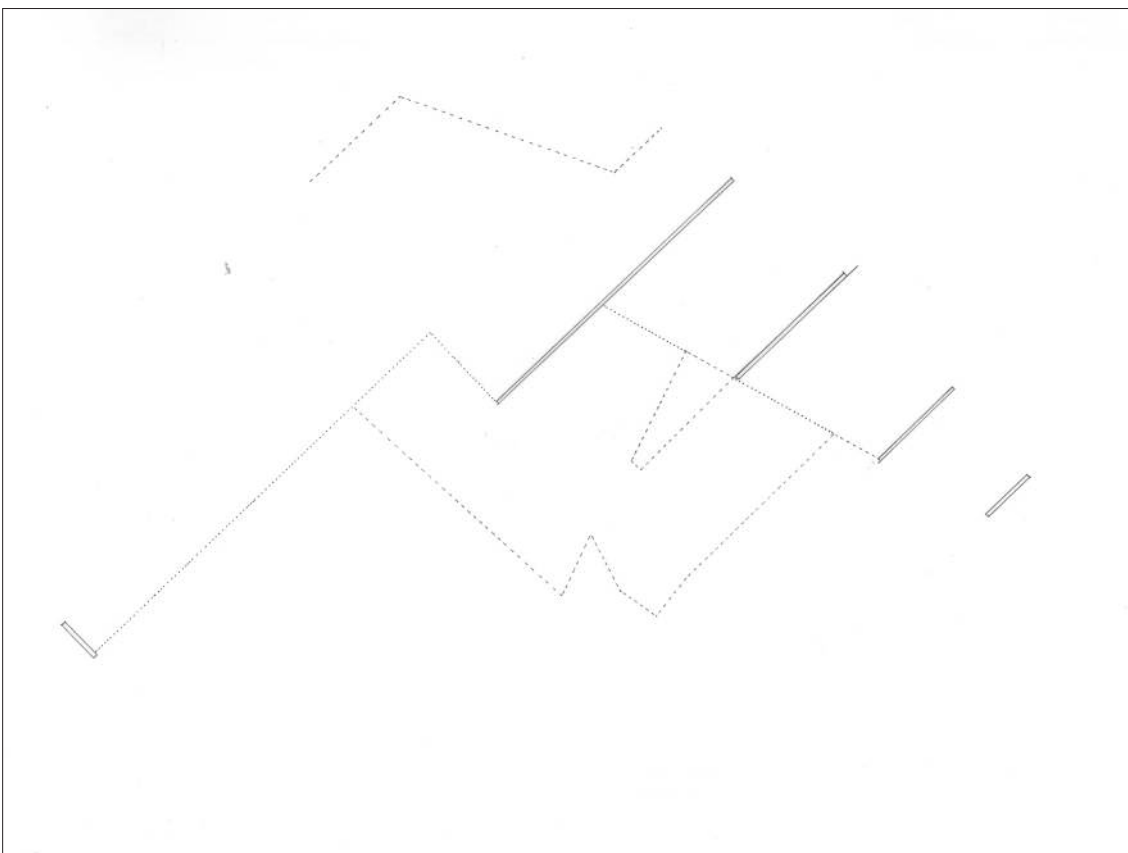


Fig. 2.2.186  
Metal elements.

### The Wall and Lineal Ordering Elements iv

Three different types of metal elements are used to articulate materials and also working as limits with one exception.

The dotted lines represent a metal flat channel used as transition between pavers. It limits joining and separating; mediating..

The dashed lines represent the use of a metal rounded head channel that resolves the transition between the stone pavers and soil or sand flooring. This piece is a limit marking the end and beginning for two materials; it separates and links them dealing with an asymmetrical situation in an ordered manner.

The continuous double line represents the location of metal perforated channels to collect the rain water and these are placed among the stone pavement. This element not only collects the rain water but also provides rhythm within the very large homogeneous paved area. This is carefully inserted as part of the stone floor ensuring that pavements are cut lengthways while providing contrast. This limit is recognisable. It makes space for, separates and joins and determines (reflects) on the flooring as an entity. It fluctuates, as its role of collecting water is only revealed at specific moments.



*Fig. 2.2.187*  
Metal elements.



Fig. 2.2.188  
Seating: Benches and low wall bench.

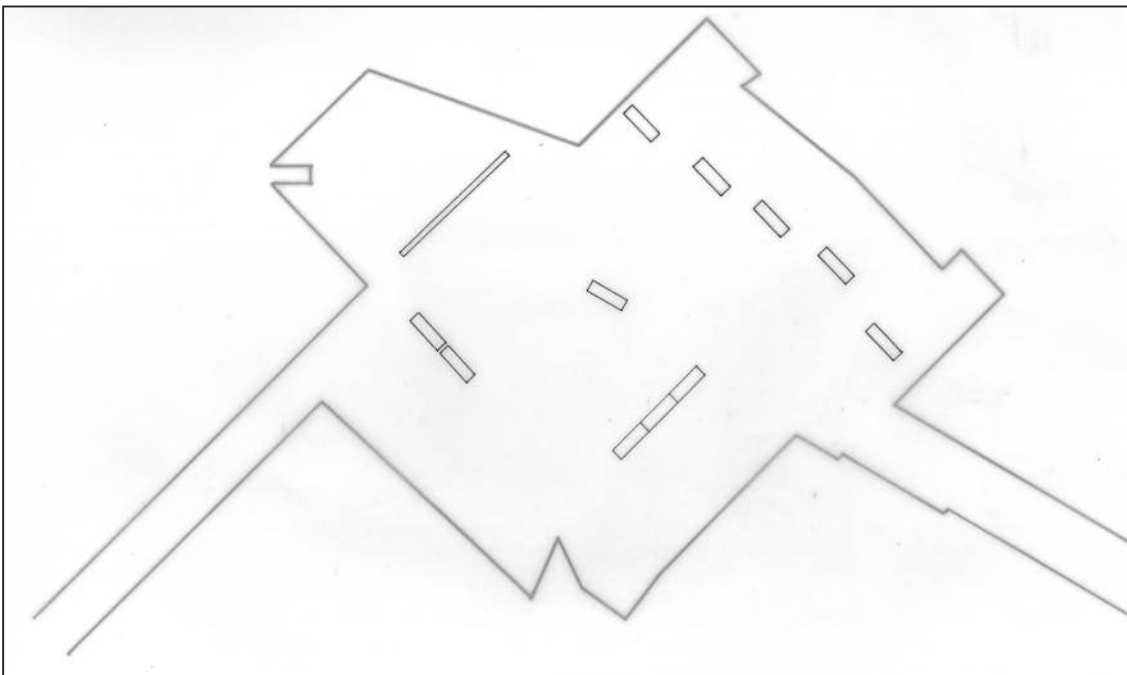


Fig. 2.2.189  
Benches placed to enhance limiting.



### **The Wall And Seating v**

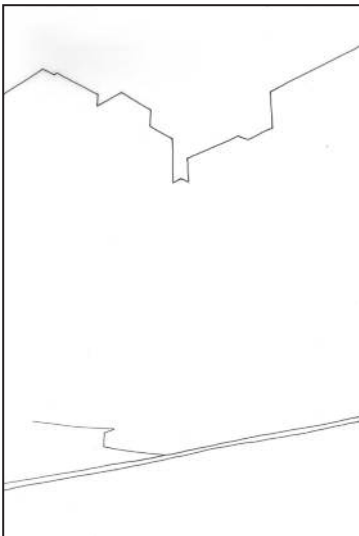
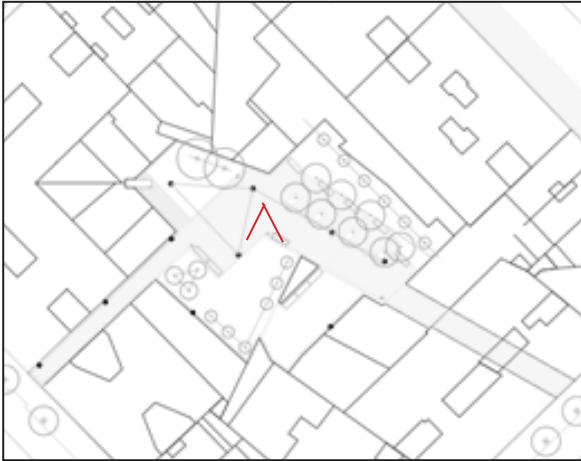
Two different types of seating are added: a long low wall and benches.

The long low wall acts simultaneously as wall and bench. It delimits a sandy play-area and the pass-through area, it is a double limit. This wall reads with the perimeter wall due to its length. It also reads with the other benches as it takes the height of a conventional bench. Hence, it shares qualities with a wall and bench, displaying as a double limit with ambiguity. This wall is made of boards of non-treated timber, contrasting with the sand and stone, and is placed at the edge, reading as an addition. It separates and links, and mediates with the sand and stone. It acts as a bench from both sides, it has made space for sitting, jumping, standing, watching, watching from both sides.

The bench has two variations. The benches placed under the canopies of the trees to the north-east have a backrest facing the space for moving through, reinforcing the limit behind, the asymmetry and the wall as an end. The other benches do not have a backrest, offering two sitting positions facing opposite sides. These benches are placed in relation to a limit revealing the double limit. In this case, the benches help to define the limit as a boundary relating to both spaces, relating and separating.

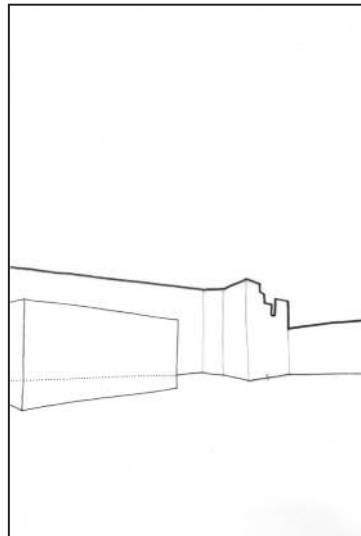
Fig. 2.2.190

Photo of inner space and diagram.  
 Visitor's outlook, where surfaces structure and compose the view.



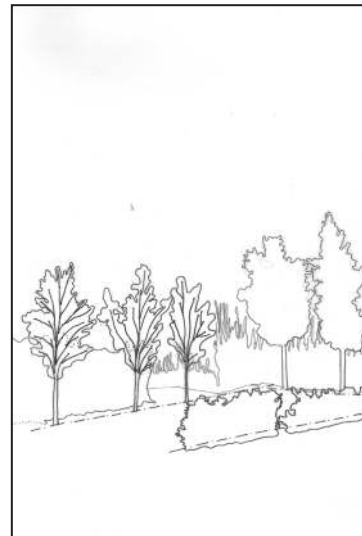
The upper line, the rim of the building, presents the sky. The lower lines define the "here" and the end of the foreground.

The upper line; the rim encloses, presents the sky and coincides with the urban horizon.



The wall mediating the "there" and "over there". From other positions these are the "here" and the "there".

These middle lines are part of the "here". The thicker line marks the beginning of the "there". The wall is the hinge between the "here" and "there".



Layers of vegetation dressing the limits; the walls.

The layers of trees help to mediate and relate the different limits, "here", "there".

A line of trees and climbing plants dress the middle ground objects.

Fig. 2.2.191

Delineation of the background, middle ground and foreground.

## The Journey

Two moments of the journey placed in the middle of the inner space are presented in relation to the experienced limits. The first one is the moment introduced on the left and the second is the area of trees intersecting with the route through.

### **Views and Territoriality**

I am inside, anywhere I look the boundary-wall accompanies me, I am and feel enclosed and protected. The delineation of this wall has also great presence on the drawing and I read things in relation to it. The inner façade constantly presents the sky and the boundary wall presents the inner façade and this is revealed in section (following page). I cannot see the inner façade or boundary wall behind me, but I feel it. But I have full view of it on the drawing. Any static view of the journey encompasses these different limits of surfaces composing and structuring my view where the edge, visible in a line, is visible and defines.

On the Limit

- 15 degrees: Preferred view.
- 35 degrees: Eye of movement.
- 60 degrees: Head rotation
- 94 degrees: Head/eye maximum area.

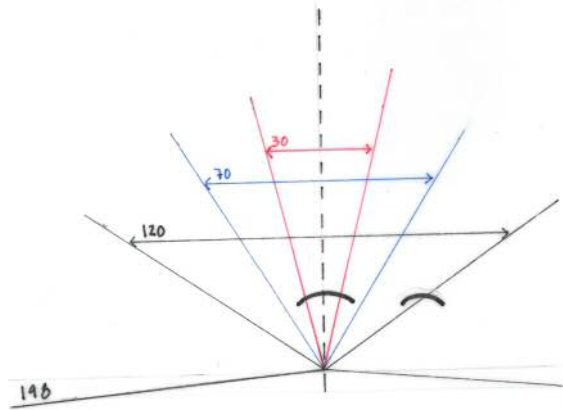


Fig. 2.2.192  
Horizontal angles of view.

Those limits that the visitor sees are represented by continuous lines and the thickness relates to their presence. The discontinuous lines represent limits that the visitor cannot see from her location and the dotted lines join her eye view with the vertex of a perimeter defining the point of the seen and unseen. Lines in red correlate with the angles of vie for head rotation and hed/eye maximum area.

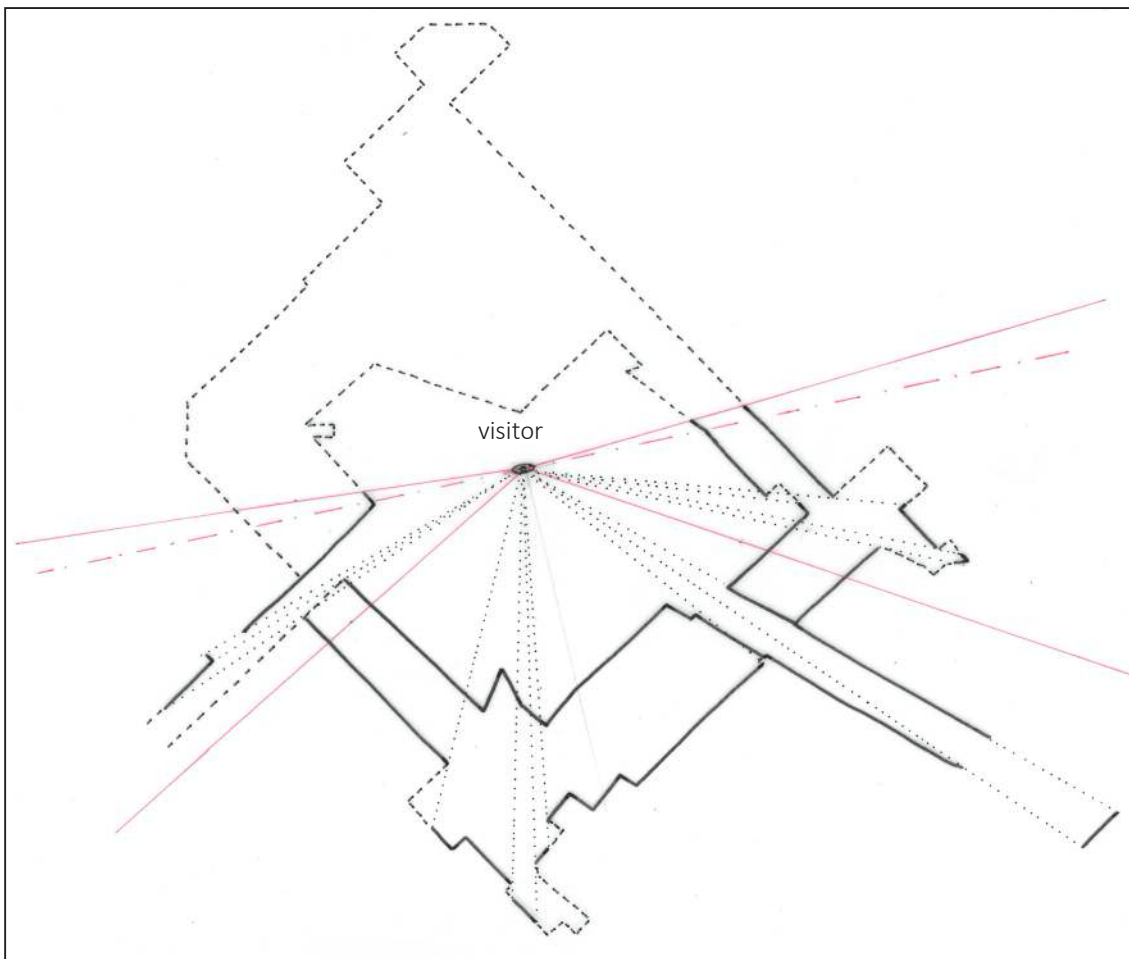


Fig. 2.2.193  
Visitor views of limits.



### Visitor and Resident i

The plans below shows the alternative visual territories for the visitor (left) and for the resident (right). The domain of the visitor contrasts with that of the resident who dwells in a flat above the ground floor. Their domains and territories are defined by the limits and their order is the reverse. The resident, while contemplating the inner open space from his balcony, is in an in-between that is neither public nor private, outside nor inside. He is protected by the wall just behind him containing his private realm whilst he is exposed to the sky defined by the building line and the inner open space defined by the boundary-wall.

This visual territory correlates with the limits and what defines the place. The walls and elements delineating their limits are the same but they are perceived and as limits reflect and contest differently.

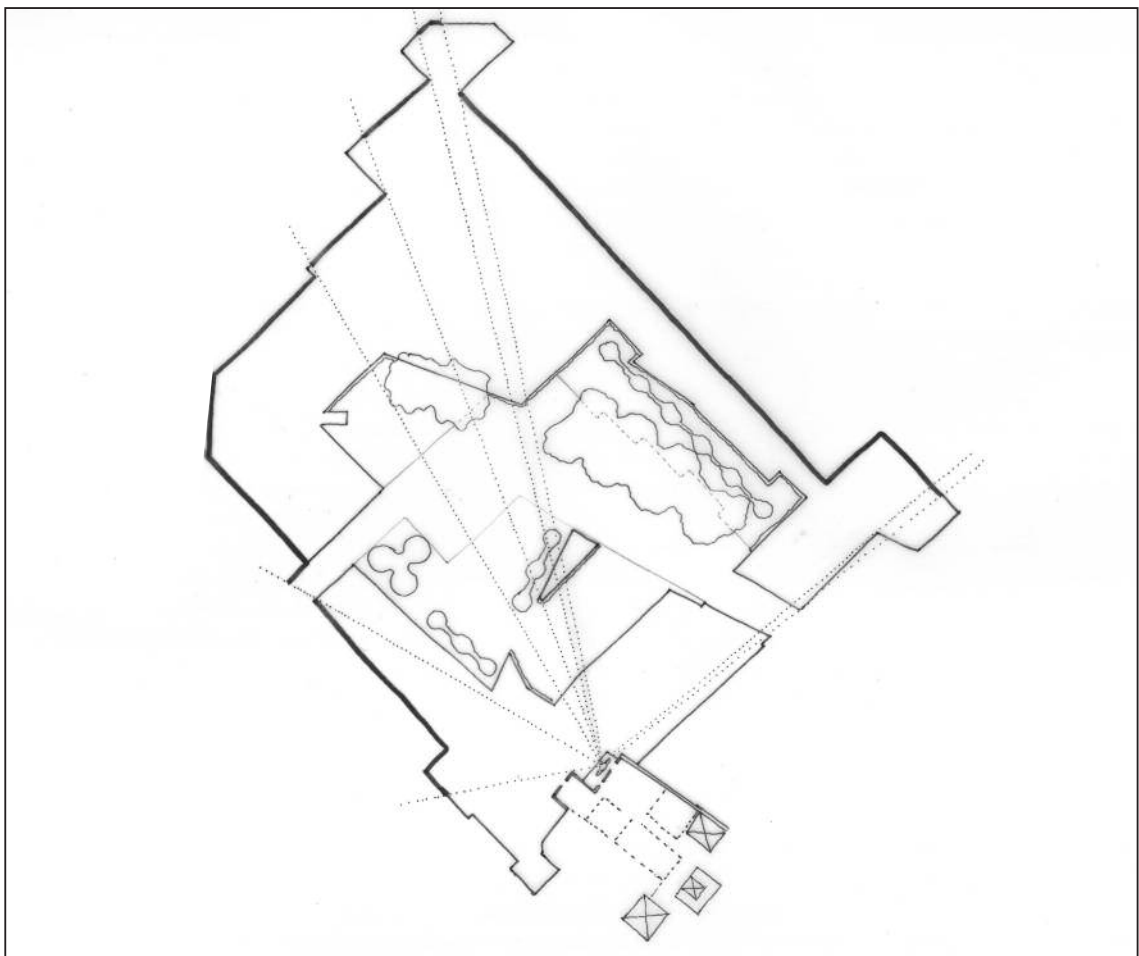
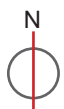


Fig. 2.2.194  
Resident views of limits.





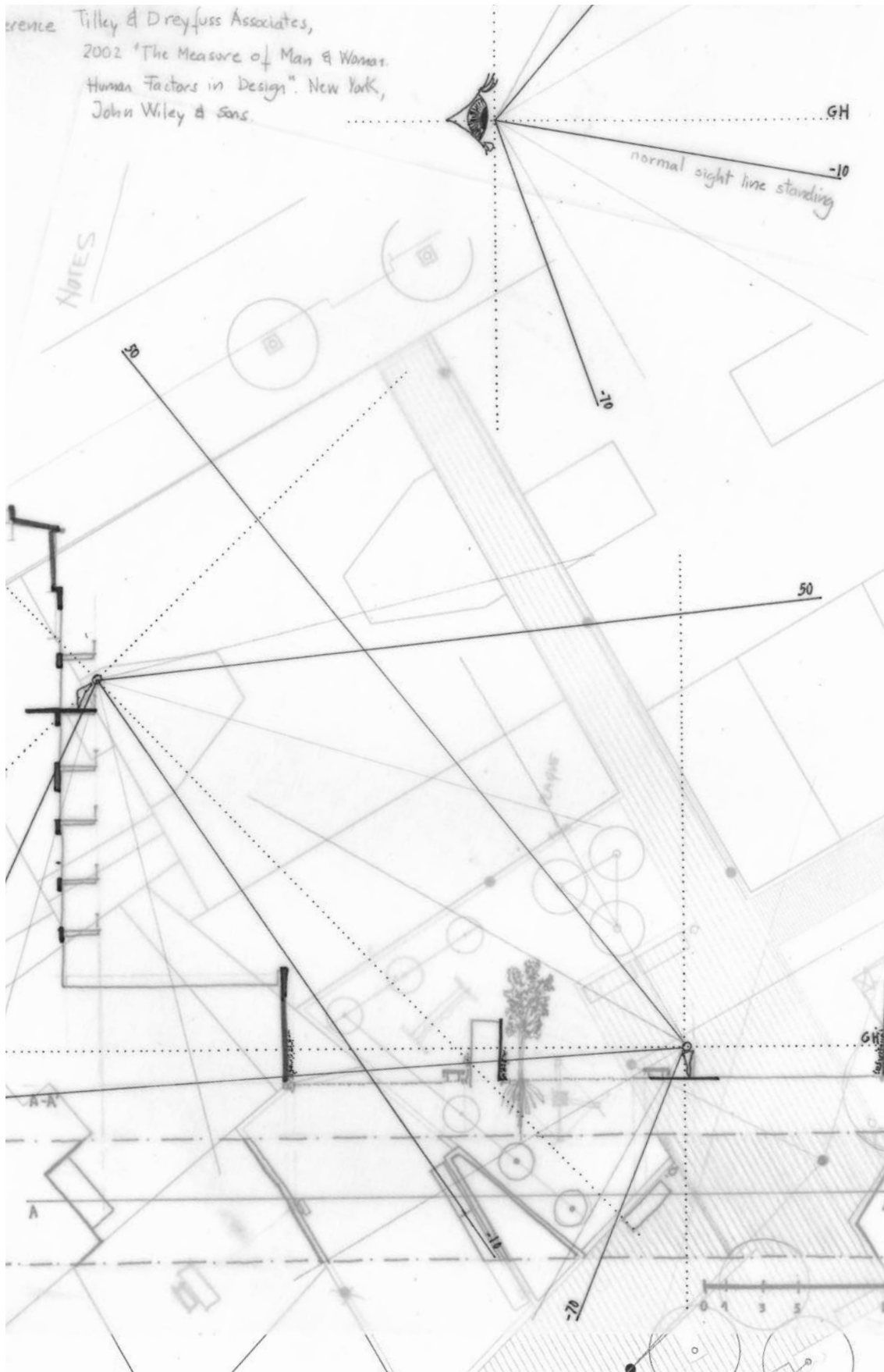


Fig. 2.2.195  
Section with view lines of the visitor on the ground floor and resident on an upper floor.

### Visitor and Resident ii

The resident's view is closer to a plan than an elevation while the view for the visitor is nearer to an elevation where the horizontal distances are compressed and difficult to sense. Thus, the resident feels the inner space with the visitor in it is far away, while the visitor feels the resident quite near. Distances are experienced by visitors and residents differently.

The visitor is protected by the boundary wall and more immediate limits such as the treeline, pavement, benches and these contrast with the limit of the inner façade and its far away ultimate upper edge presenting the sky. They feel protected by the inner-façade and inner wall that encloses and acts as a double run, yet they feel exposed to the overlooking views of the resident from above.

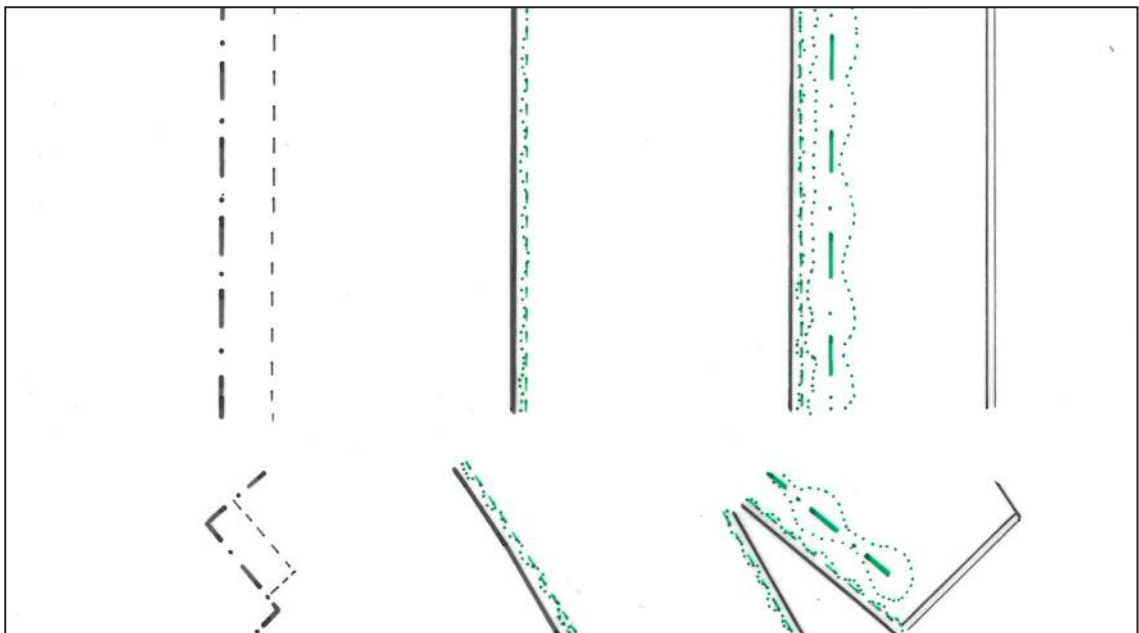


Fig. 2.2.196

Plan delineating the Cartesian limits experienced by the visitor and resident.



Fig. 2.2.197  
General view of the conglomerate of limits.



Fig. 2.2.198  
View of the study area for the following pages, highlighted.

## Conglomerate of Limits

For this area it is relevant to realise that a line of trees has changed, changing the limit when analysing the role of the trees.

### Zoning

The route determined by the extension of the two entrances from the outside defines the different spaces to stay. In this case the route loses its definition, intersecting with the space to stay, redefining the limits.

This area, through the tactic of layering in plan and the juxtaposition in section, presents some clear limits, with others more delicate that blur or mediate the clearer ones. The studies in plan draw the limit in layers that are juxtaposed, revealing how lines representing changes of materials work together with virtual lines that place elements like lights, tree pits, trees. The section shows the layering of lines and virtual and/or transparent surfaces that constitute the limits.



*Fig. 2.2.199*  
Main lines of importance for the study area.

Fig. 2.2.200  
Perimeter wall in section (right).



Fig. 2.2.201  
View of wall above.

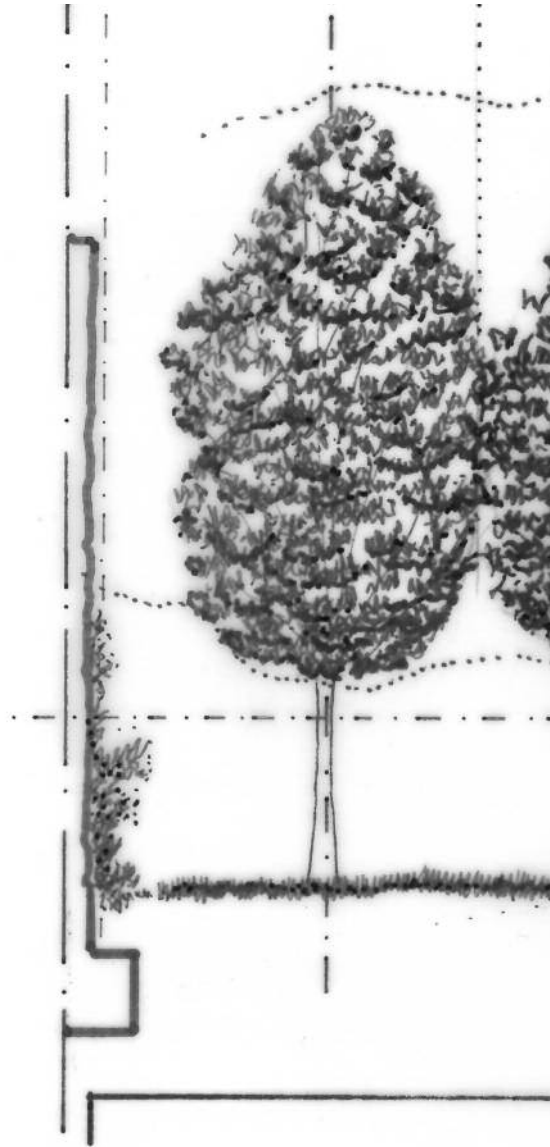
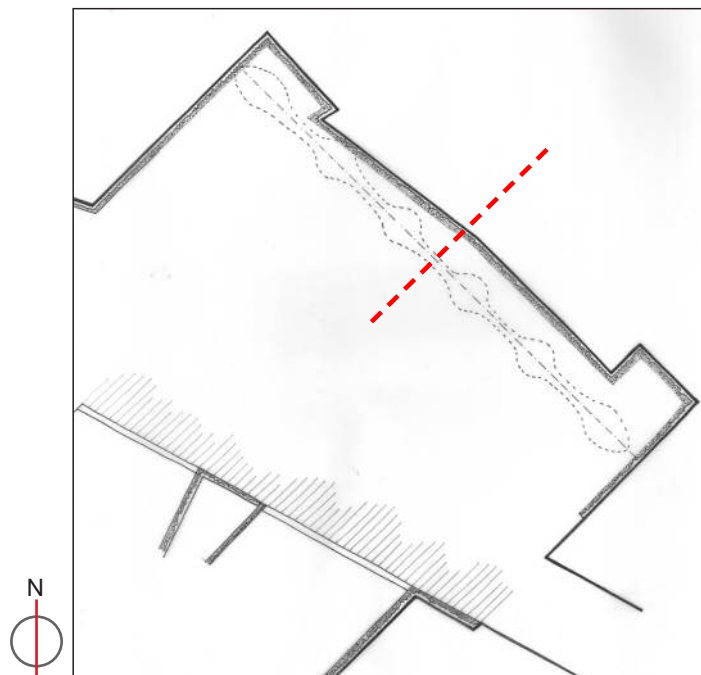


Fig. 2.2.202  
Perimeter wall in plan, section noted.

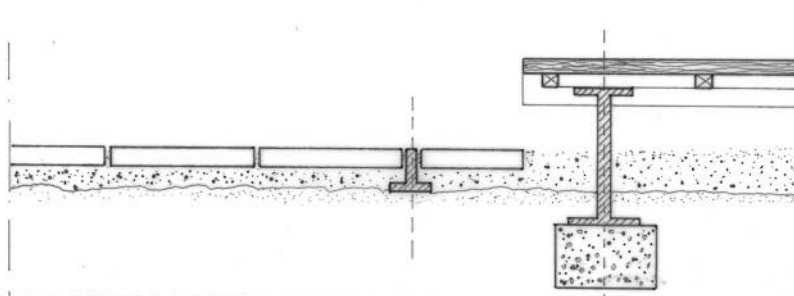


### **Perimeter Wall i**

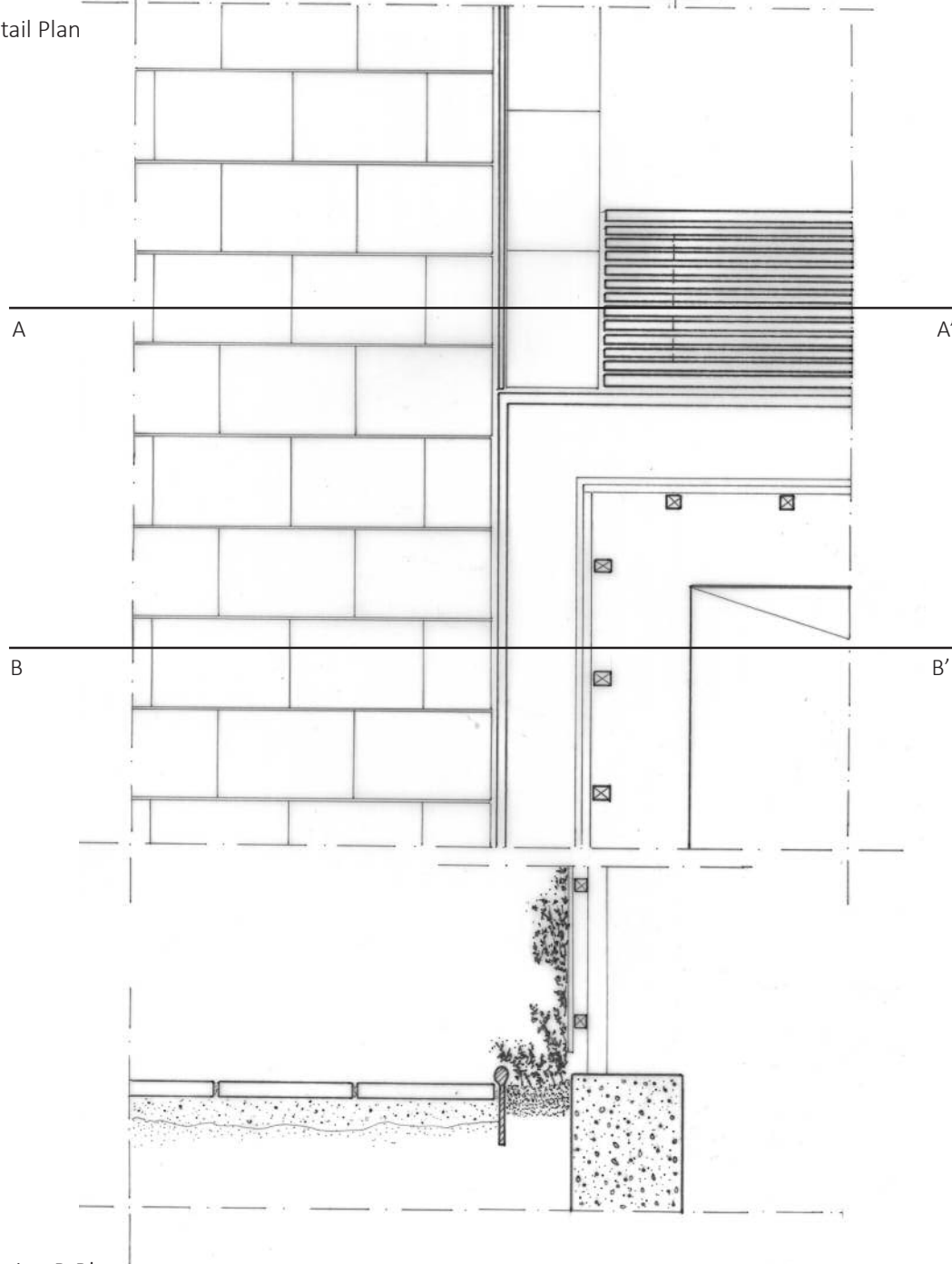
The most prominent limit to consider containing this moment is the perimeter wall. It creates this area by folding itself and creating a recess. The wall along its length has two smaller recess set within the larger one. These are smoothed by the wrapping and climbing plants that unify it with the rest of the perimeter wall. A layer of trees spaced perfectly in a line is added just in front of the wall. This limit is constituted by a wall delineating a hard edge; separating public and private. However, this has made space for, it separates but the added elements seek to join. The climbing plants unify and beautify the wall, but also present the "there"; the private domain seeking to mediate. The line of trees has a similar vocation to the climbing plants, that is separating, containing the visitor "here", as well as joining with what it is beyond, the "there". Thus a inhabitable strip with multiple lines is revealed, that joins and separates. It is asymmetrical, as this time only one side of the hinge of the limit is displayed. It fluctuates in the sense that the shadow of the wall and trees draws another line, modifying the strip, plus the vegetation that changes throughout the seasons. It is topological as this wall before was a perimeter and now its meaning has been enriched.

On the Limit

Section A-A'



Detail Plan



Section B-B'

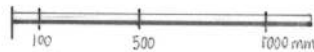


Fig. 2.2.203

Limit of the area for moving through in plan and sections revealing a strip.

### Pavement Area ii

The study area has two limits at each end: one presented on the previous page and the other here. The route is paved consistently, utilising just one type of paviour laid in one direction. This is one of the two locations where the route intersects with a space to stay, loosening up its rigidity (and monofunctionally) and gaining in richness, providing flexibility, with subtle limits and encouraging meandering in a physical but also a visual sense. This presents both a limit and a transition, as a result of meeting a different material at opposite sides of the transversal direction of the route.

Limit: the encounter of the pavement with the sand along a straight line that has been precisely placed. The resolution of this encounter is precise. The last paviour adopts a longitudinal position perpendicular to the direction of the paviments of the route and a metal profile is placed in between these two paviments. Thus, this limit is formed of different lines defining a strip. In this case this strip is constant until it encounters a different material, the solution is different, but the width of the strip is constant and linear.

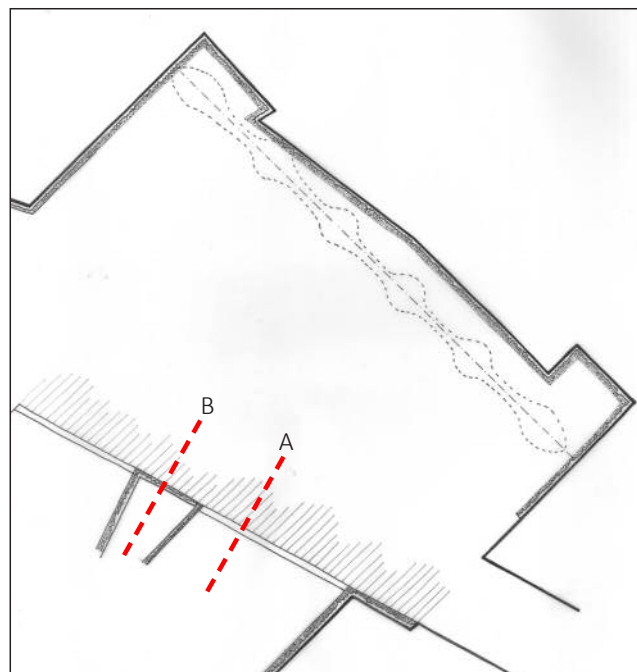


Fig. 2.2.204  
Pavement limit in plan, sections noted.

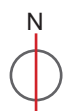






Fig. 2.2.205  
In between limits / transition in plan.



**In Between / Transition**

Whereas the previous limit is precise, formal and linear, the transition opposite is precise as the elements are fixed but it is conceptualised as a changeable strip, with subtle tactics handling the gradation between spaces of very different qualities.

When the pavement meets the grass the paviments just stop and this happens along a broken line contrasting with the straight line of the limit. Each segment of this broken line has the same measurement and is reinforced with a bench fixed on the last row of paviments and a tree in each kink placed on the grass area.

The broken line defining the end of the pavement is offset inside the paving area starting at the point where the perimeter-wall turns the corner sharply. This broken line defining the location of the tree pits and the paviments from these lines towards the grass have a bigger spacing allowing grass to grow only in the direction of the movement demarcating.

Round vertical elements: lighting pots and trees are placed in virtual lines parallel to the broken line and the perimeter wall. These form virtual and transparent surfaces that layer the space.

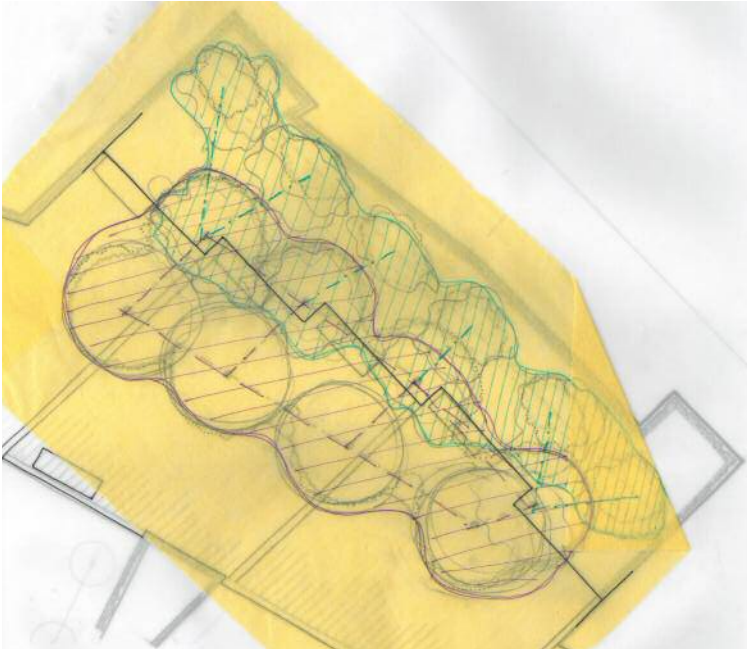


Fig. 2.2.206  
Overlapping of tree lines delineating and identifying an area.

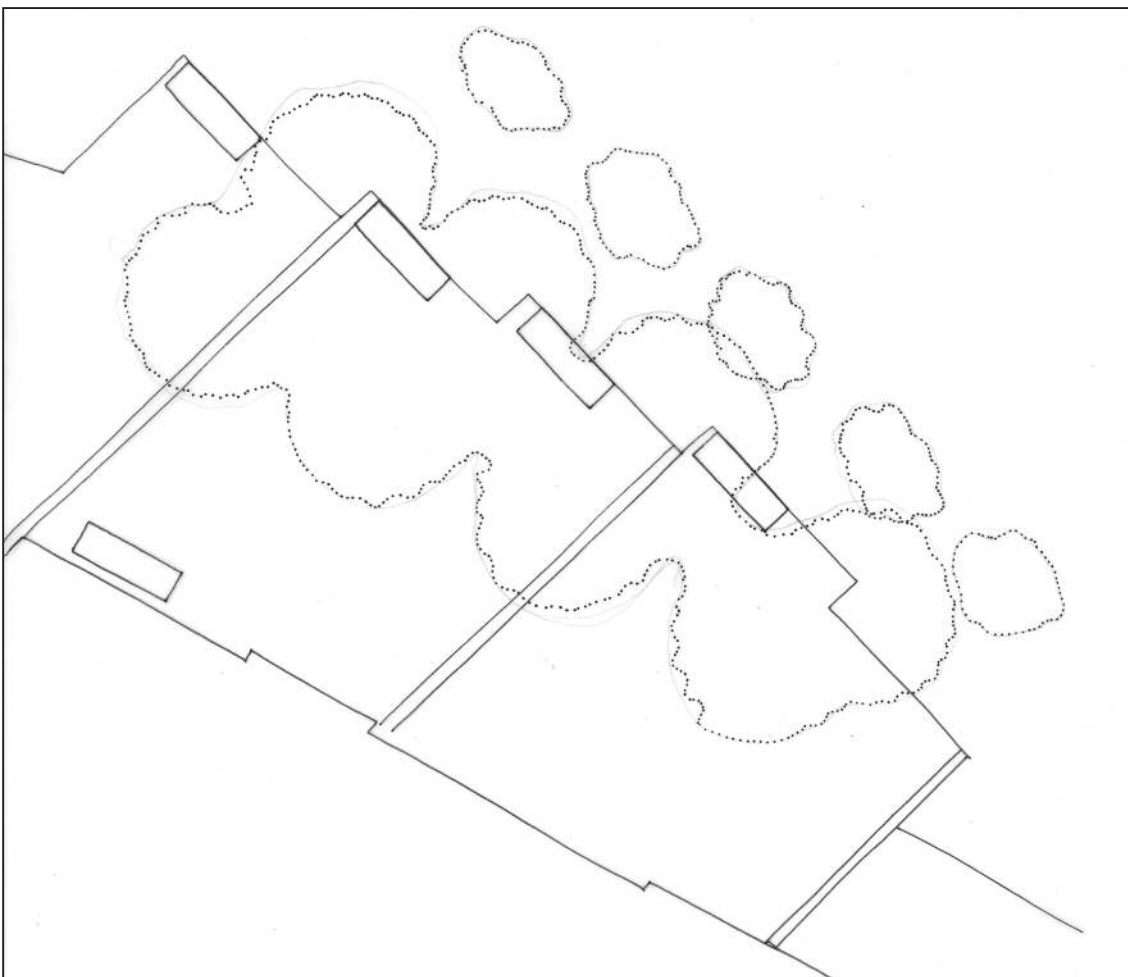
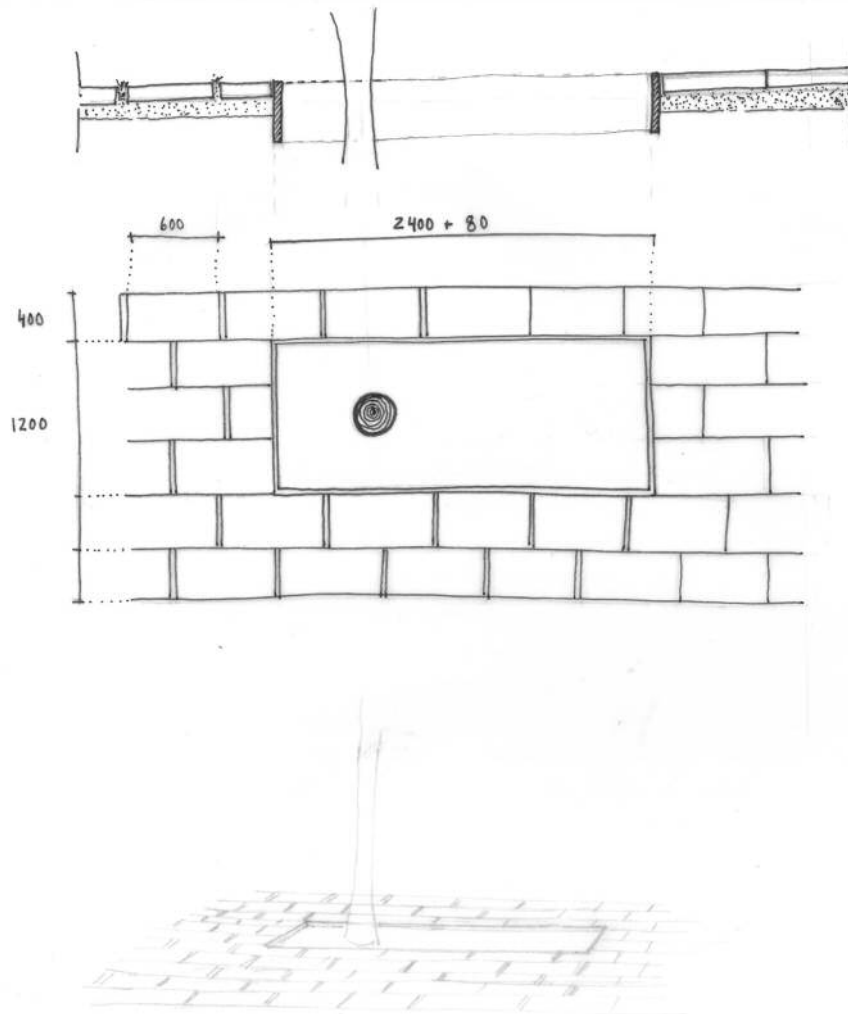


Fig. 2.2.207  
Mapping the overlay of flooring surface with trees canopies above.

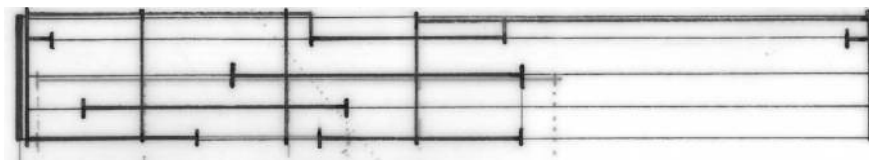
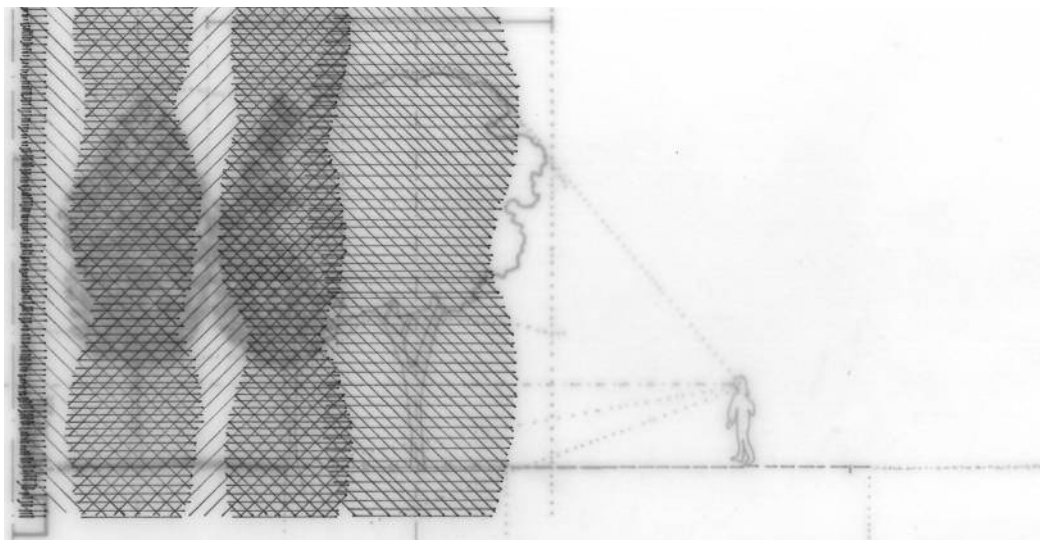
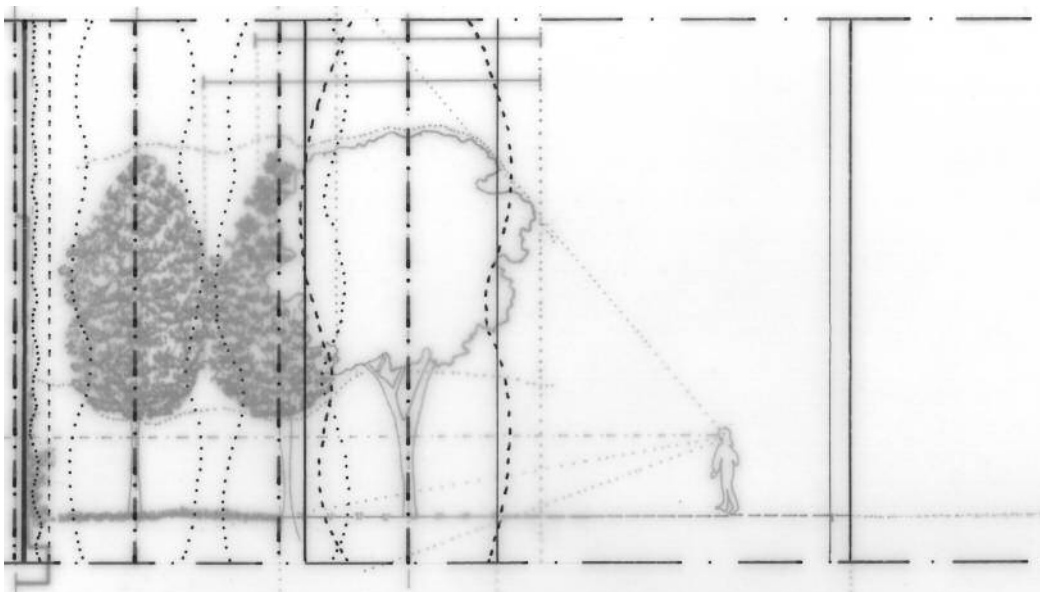
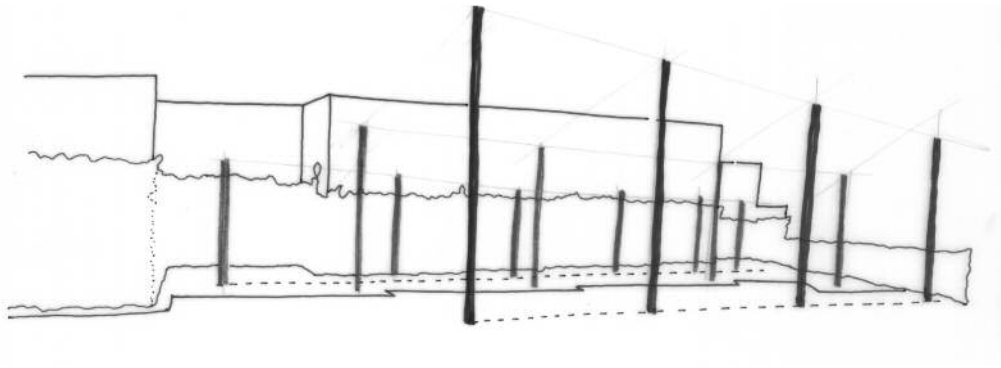
**Green Area iii**

This area is an in-between space bounded by the perimeter-wall and the broken line where the pavement ends. This in-between replicates the limit and the transition of the pavement area and the transition is a hinge for the two areas.



*Fig. 2.2.208*

Exploration of insertion of three pit as part of the pavement transition, delineating changes.



## Layering

The visitor's view is formed of different layers: the background is constituted by the façade at the back, framed by the edge of the trees, which are the "here", defined by the "over there" of the façade further back. The perimeter wall with its vegetation is at the limit of the middle ground and this starts with the tree line nearest to me.

The trees are a strong visual component that carry different roles:

1. They define an area underneath the canopies, represented by the projected shadow on the pavement. Trees of the same species have synergy working together;
2. The trunks provide directionality and depth to the space;
3. They blur the limits, supporting the idea of the boundary offering porosity, change through shadows and shape, closing and opening, as I can see through...

The top image presents some of the layers of this complex limit that includes a conglomeration of limits reading as strips configured with multiple lines. The middle image presents the lines of the limit in plan, yet identified in section and how some of them overlap. The diagram below correlating with the middle image delineates the different strips with a hatch revealing the overlapping. The associated stave diagram (resembling music notation) notes the strips in the lines revealing the complex juxtaposition and how for example a tree is part of the limit of the wall but also of the in-between. Thus, it displays how the strips are limits which are re-defined when considered with the other limits or even part of the strip belonging to another limit. The delineating reveals the constant re-balancing attributes of separating and joining. It displays as ambiguous, asymmetrical, changeable and topological, being redefined when re-drawn and re-considered.

*Fig. 2.2.209*

Opposite page, Top: Conglomeration of limits into one where the generative lines are at different levels.

*Fig. 2.2.210*

Opposite page, Middle-Top: Lines of a strip delineated on plan but generated from the section.

*Fig. 2.2.211*

Opposite page, Middle-Bottom: Delineation of strips as surfaces revealing juxtaposition.

*Fig. 2.2.212*

Opposite page, Bottom: Diagram revealing the concealed synergies between elements and their juxtaposition.

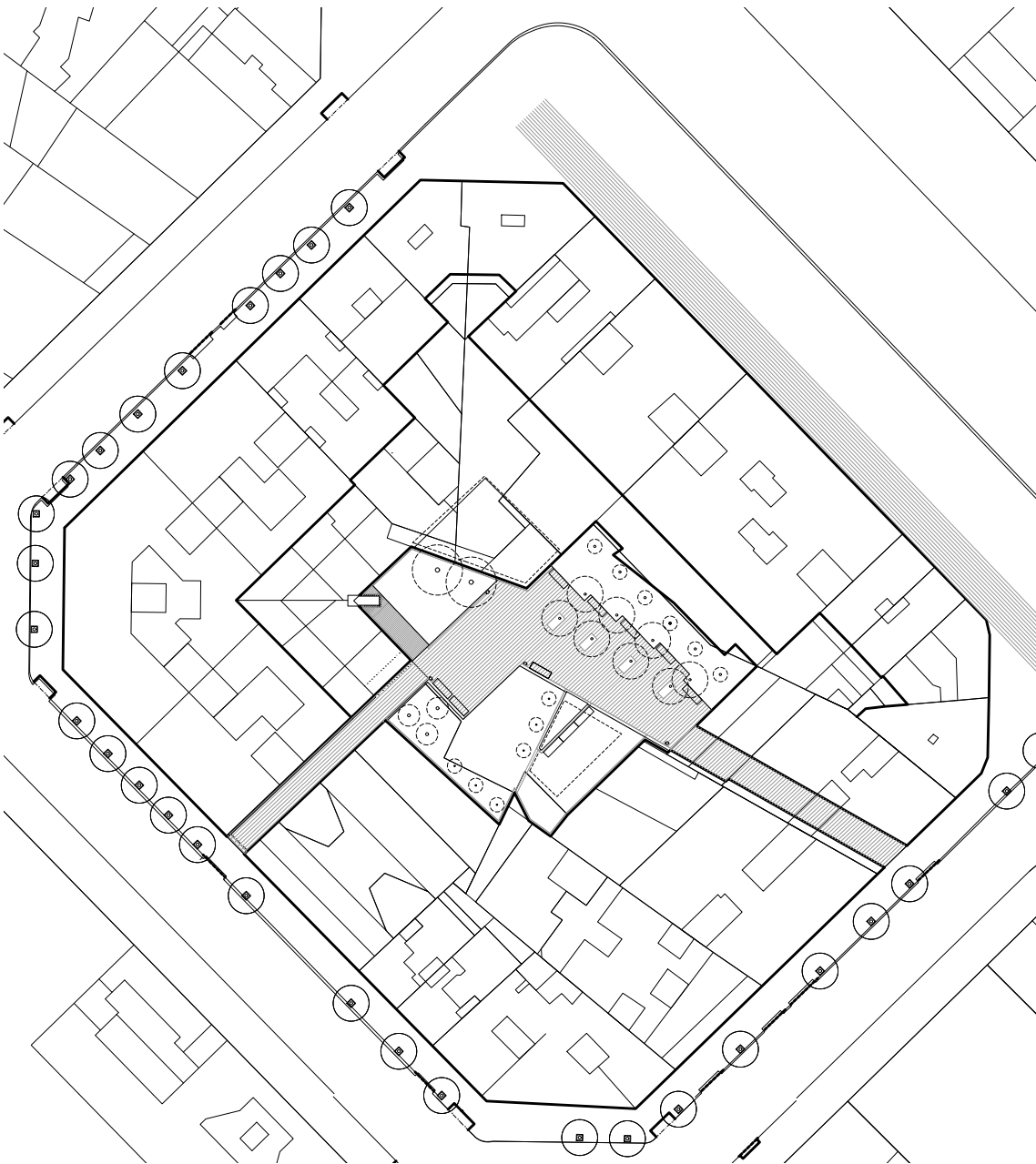


Fig. 2.2.213  
CAD Plan of the Block.



## Re-Drawing the Block

### The Experience of Redrawing the Block: Drawing Lines From the Limit

The City of Barcelona provides comprehensive information of the city covering all sorts of data from historical maps to CAD drawings for all of the city, with some parts covered at a very good level of detail. The city council also publishes their work and projects are available to the public. Nonetheless, the plans for the inner open space of the block are not available. Therefore, I have drawn it in AutoCad over the base map available from the Geoportalbcn with measurements taken from site visits, photographs, google aerial maps and pictures, other maps accessible at Geoportalbcn, and the publication *La+U+Urbana. El Libro Blanco de las Calles de Barcelona* edited by *Fomento de las Artes y del Diseño*.<sup>38</sup>

The mechanical experience of drawing the block was laborious, but also revealing. I overlaid different pdf maps of the block from which to trace. Before drawing any line I had to check how they correlated and were codified. Then I started with the perimeter of the block, kerb and the inner perimeter of the block made consistent amidst all the differing available information. At that point, these were perimeters and became referential lines when I started to locate and draw elements in relation to them. The kerb and the inner perimeter of the block were drawn in relation to the perimeter of the block. The street's trees were located from the kerb. The three spaces to stay in the inner open space were placed from the inner perimeter line and most of the other elements were based on that perimeter and the pavement. Everything seems interrelated, one element dependent on another.

This open space uses a limited number of materials:

- Flooring: hard surface- stone pavement, soft areas-sand, soil or grass;
- Lighting: four different of points of light: two different types of lamp posts and three wall lights within the inner open space and wall light spots along the corridor-access from *Carrer d'Alí Bei*;
- Vegetation: There are four different types of trees used in an ordered manner:
  1. Along the walls;
  2. To create a shaded area;
  3. Ornamental: two types;

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<sup>38</sup> Jordi Farrando, ed., *La+U Urbana. El Libro Blanco de las Calles de Barcelona* (Barcelona: Fomento de las Artes y del Diseño, 2010).



4. Plus, the climbing plant covering part of most of the walls.
- Ornaments: one type of bench with a variation, a fountain, a low sitting wall, two bins of the same design, steel elements as such as profiles to end pavement or collection of water.

The hard flooring is a key element and provides measurement to the space. The width of the paviour<sup>39</sup> determines the placement of the tree pits or water collection. I found myself counting the number of pavours between the building boundary line on the access from *Carrer Sardenya* in order to place the green strip along one of the sides, or pavours between the lines of collection of water, the tree pits, etc. When drawing, I saw through lines: lines defining the end of the pavement and beginning of the sand or grass, lines of the collection of water, lines of trees, benches, lights, ... These lines are placed in relation to the perimeter wall, each other and the surface of the pavement. The pavement allows the placement of elements due to the consistent pattern and visible edges of each individual paviour. Until this point the edge of the paviour only existed at the point where the pavement ended, and the edge was revealed as edge. The flooring as surface denies the edge of the paviour until that specific moment when my eyes concentrate on detail, becoming aware of the individual pieces and the edge re-emerges.

The trees were also placed in relation to the perimeter wall, which at that moment acts as a generating line that places the pavement. The tree trunk was delineated on plan and its associated canopy above with dotted lines. The dotted lines represent an area that it is felt by the shade but not recorded as there is just so much that can be drawn.

Before presenting the drawing or printing, the lines of the drawing had to be codified, otherwise the representation reads as a sea of lines of equal weight. The order, based on what the lines represent, establishes a hierarchy, revealing the level to which the limits operate and the manner in which these are interrelated or dependant. Here, we can question if the limit is topological or if the practice of the architect of drawing at scale makes it topological. The hierarchy of lines is established, and then limits are recorded with a line thickness. Some of the lines are revealed as bearing and generating and some as limits themselves, reflective and contested.

Thus, the experience of drawing has revealed the appropriate placing of the limit aside from defining, containing, legislating, ... and the act of drawing, limiting depended on the limit.

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<sup>39</sup> Pavours are only cut in their transversal dimension in halves and thirds of their length.

## Summary

The study of the recovered inner open space in the Cerdà block demonstrates that there are no pure simple lines. Most limits and many lines of the limits have more than one meaning and role and can be typified but not classified. The inquiry through drawing has involved the exploration of limits at different scales and in relation to different elements, unveiling its *presencing*<sup>40</sup> and the bearing and generating of the lines.

The inner open space sits within a block as part of Cerdà's grid and is accessed from two streets defined by the block containing the inner open space and the adjacent block. The inquiry resulted in a contextual analysis focusing on the line as limit covering different aspects and scales.

Lines in architecture are are limits and these are neither pure nor simple in the sense that most lines have more than one role and meaning determined by their bearing and generating. An example of this is the single line of the perimeter block (2.2.148) concurring with the line of the façade and property line. This distinguishes the inner from the outer space, the public from the private. In the change of scale, the single line understood as perimeter is revealed as a strip with multiple lines displaying the attributes of the limit and this as border or boundary (2.2.149, 2.2.161). Another example is the axis- a shared limit- of the street (2.2.140-141) which is an intangible or invisible line to the eye as it is not materialised. However, it defines the grid, locates the block within the grid and it coincides with the ridge of the road area defining where the rainwater falls, directly linking it with the kerb (2.2.160). Furthermore, the kerb also collects the rainwater fallen on the pavement. The kerb is located by the axis and the block even though the kerb's original intuitive main role is to mediate between and differentiate the pavement from the road area (2.2.149). The drawn line in official maps correlates with the edge of the kerb and not with the strip where the rainwater is collected but in relation to it. This is a result of an "offset"<sup>41</sup> of the line of the perimeter block. Hence, based on the drawing experience, the kerb is also positioned and dependent on the axis as well as on the perimeter block (2.2.163). Once again, at the change of scale, the limit represented with a single (or perhaps double disparate lines) reveals as a strip composed of multiple lines with a double nature willing to join and separate. The limit and its lines are influenced and influence others displaying asymmetry.

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<sup>40</sup> In the words of Heidegger.

<sup>41</sup> "Offset" is a command in AutoCAD to copy and paste a line at a given distance, parallel to the original.

A further example is the wall defining the inner open space (2.2.170) which, at first glance, reads as a boundary working in one direction containing space separating the public and private space (2.2.178). Yet it also acts as a hinge between the visitor and the resident and this was revealed in section (2.2.195). Furthermore, this limit in the drawings provides a greater understanding on how the limit displays in multiple ways depending on the viewer disclosing the attributes of asymmetry, fluctuation and ambiguity (2.2.193-195). The edge of the pavement area distinguishes the “this from the that”,<sup>42</sup> defines the end and beginning of granite slabs and the area to move through, as well as redefining the geometry of the space defined by the perimeter wall (2.2.180-181). At the detail scale of the limit between the “this from the that” (2.2.203) the limit reveals as a strip with multiple lines leading the transition between the hard to the soft area and the lines are precise and codified deploying the conventions of the architect used to design this type of limits. Hence, each of these limits is multifaceted and topological determining and defining but also defined by other limits or aspects. Some limits started revealing as perimeters or edges but as the exploration of their representation progressed, other qualities emerged revealing that the limit in question was a border, boundary or rim. Thus, the limit is able to be defined and redefined. The multiple lines of the limit may modify or at least their bearing and generating may reveal a change in how the limit is reflective and contested relating to the fluctuation and ambiguity attributes.

The limits explained previously are positioned by others but have also the ability to position. This was revealed in the study of grounds of pictures (2.2.191) and through the inclusion of the viewer in the conventional drawings (2.2.179, 2.2.193-195). A limit may be of one type or a combination of types depending on who experiences it and at which side of the limit the person is placed. The outer and inner perimeter correlating with the façades of the block are two examples. The resident perceives the façades as boundaries while the visitor and pedestrian perceive them as borders, edges and rims at specific height. Thus, on some occasions, the limit is not just defined by its own physical attributes and particular location with its inherent relations based on proximity, but also by the located body inferring meaning to the limit.

The representation of the limit is challenging. It rarely can be represented by a line as it needs a myriad of lines that are interdependent in a specific manner. Sometimes at a close proximity there are a number of lines depicting several limits while the lines also define bands appearing in sequence or partially overlapping. These lines need to be codified depicting the complexity of their own bearing and generating, relationships with other lines and bands (2.2.210-12).

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<sup>42</sup> "This and that" is used by Gordon Cullen in his decription of sequences and spaces.

These reveal in plan, section or a combination of both where time is implicit. First, the main lines are seen and in many cases as simple perimeters or edges but as the study proceeds these are enriched with complementary interpretations. Sometimes these are inferred from newly disclosed subtle lines, interrelationships or dependencies redefining the limit or a conglomeration of limits; lines and bands. Some of these subtler lines may correlate with non-tangible lines like the canopy of the tree or the added shadow and others define edges of surfaces or volumes. The resulting diagrams are neither in plan nor section (2.2.212). Instead, they are a conceptual representation of the limit in question and to disclose the full experiential richness of the limit, should be depicted by a series of complementary diagrams. Then, on some occasions, an area displays a conglomeration of limits that contains an intensity of limit within the network of limits.

The act of drawing on top of pictures or plans, sections and so poses the primary question of which lines are to be drawn and how, implying an awareness and selection by the designer. The mechanistic chore of drawing the plan of the block in AutoCad (2.2.213), providing a base from which to survey the representation of the limits, prompted the basic enquiry of the line and then the limit as the instrumental element of graphic representations. Each line represents something, and it is drawn in relation to another or the other lines. Each line has a thickness, length and direction within the drawing, which includes a cardinal orientation. Between lines are measurable distances and the lines are placed with a relative direction. However, the first line of the drawing is significant as it determines the lines to follow and to some extent the credibility (in terms of precision) relies on this first move. In this case, the perimeter block was drawn first, and then, the axis, other perimeters, edges and details followed. These were drawn following a similar order in which the limits have been presented and the process of drawing brought the attention to how lines are drawn in relation to a primary limit. The primary limit refers to the limit that discloses at different scales and part of the network of limits. This exercise, once again, reveals the topological nature of the limit; this as an entity but as part of a whole; multiple and multifaceted.

Finally, the depiction of the limits in this case study shows that in the middle scale the limit reveals the greatest complexity and richness, needing the large and small scale to understand what the middle one conveys and reveals. The contested and reflective limit and the bearing and generating its lines is revealed in the shifting between scales; the transition of scales.



## 2.3 Interim Conclusion

Part 2 comprises two distinct chapters; chapter 2.1, 'Conventions of Representation' and chapter 2.2, 'Representing the Limit' culminating with the interim conclusion. 'Conventions and Representation' advances the discussion about the dual form of the drawing as noun and action. The former relates to the drawing as artefact and representation and the latter to the experience of drawing and its relation to experiences in-the-world. 'Representing the Limit' presents graphic representations of experiential limits in the three case studies supported with brief explanations of the representations in relation to the limit. In Part 1, the case studies were explored in terms of their experience through descriptions to open-up a definition of the limit from the viewpoint of the bordering siege.<sup>1</sup> In the descriptions (written-experience),<sup>2</sup> I (from the bordering siege) act as a hinge mediating and articulating the written experience (belonging to the hermeneutic siege) that Eugenio Trías called symbols and the world (the siege of appearance).<sup>3</sup> In Part 2, the same relationship is established between the drawings (graphic representations), myself and the world.

This chapter outlines seven points of which the first six present lessons learned in relation to the experience of representing limits and the representation<sup>4</sup> or delineation of limits. The final point presents the refined definition of the limit in relation to the working definition presented in chapter 1.4, 'Interim Conclusion' at the end of Part 1.

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<sup>1</sup> The term siege is the translation of the Spanish *cerco* which translates as enclosure, fence, hedge, rim, halo, loop,... However, it is deployed as Trías' sense referring to the line that defines the limit similar to the line of the horizon. And bordering siege denotes the bordering nature of the being, representing the being as the limit; the hinge between the siege of appearing (world) and hermeneutic siege (reason/divine).

<sup>2</sup> The descriptions are supported by images taking a second place and the descriptions are based on my personal lived experience of the case studies, but I adopted the third-person voice, she.

<sup>3</sup> The bordering siege (cognito in the world) mediates and articulates the siege of appearing placed in the world (correlating to the phenomenological I-being-in-the-world- in Martin Heidegger's language) and the hermeneutic siege able to transcend worldliness through the written and drawing experiences enabling the representations.

<sup>4</sup> In this chapter, representation refers to graphic-representation.

## The Experience of Drawing and Drawings as Representations

Drawing<sup>5</sup> is adopted as a method to understand the world, as a means of seeing, exploring and representing even though it is distinctive and unlike the “thing itself” or its experience. Seeing, exploring and representing, both for the architect and in this research, involves moving (hinging) between the world of ideas and concepts and the world of forms and experiences, and vice versa.

The drawings are the result of the experience of drawing, the consequence of intense thinking through doing.<sup>6</sup> The first drawing for each case study and aspect to explore is usually fragile, full of uncertainty and challenges, relying on a pre-selected scale, aspect and medium which may or may not be adequate. The “evocativeness” of the first drawing is followed by another and another, all part of the iterative process inherent to design, redefining the scale, narrowing the aspect and perhaps modifying the medium. At some point, the act of drawing takes the lead focusing and calibrating my thinking and my eyes. As this process evolves, a drawing may reveal something to me that I did not notice before, diverting me from my initial and pre-planned<sup>7</sup> journey as well as from the descriptions presented in Part 1, 1.2. That drawing may suggest or ask me to draw elements differently, or in different ways leading my thinking where the drawn element/s take *presence* and displays their “thingness” to me.<sup>8</sup> This experience deploys memories of the past (lived-experiences) which are triggered and/or bounded by knowledge acquired in the past and by the deployment of resources such as google maps, photos, digi-maps or others utilised at the beginning of the process. Hence, drawing-experience has enabled me to inhabit through the drawing and thus, in a different way, to inhabit the limit.

Some drawings were made quickly and just once, while others are the result of several iterations of the same drawing with little resemblance between the first and last. In many cases, the

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<sup>5</sup> The experience of drawing is similar to the experience of writing discussed in chapter 1.4 ‘Interim Conclusion’. Although the medium is different, enabling us to see, think about and reflect differently and each displays and reveals different, complementary or subtle discrepancies on aspects or elements.

<sup>6</sup> Drawing includes the experience acquired through doing introduced by Josep Maria Montaner and presented in chapter 2.1. See Josep Maria Montaner, *Del Diagrama a las Experiencias, Hacia una Arquitectura de la Acción* (Barcelona: Editorial Gustavo Gili S.A, 2014), pp.77.

<sup>7</sup> My pre-planned journey may include preconceptions that the experience of drawing challenges and encourages me to be critical of.

<sup>8</sup> “Thing”, Martin Heidegger’s term referring to the “thing” available to the architect or ready-at-hand when before it was occurrence. See chapter ‘The Thing’ in Martin Heidegger, *Poetry, Language, Thought* (first by Harper & Row, New York, 1971; New York: Perennial Classics, 2001), pp.161-184. And Stephan Käufer & Anthony Chemero, *Phenomenology. An Introduction* (Cambridge, UK and Malden, USA: Polity Press, 2015), pp.51-65.

drawing involves a layering, where tracing paper is placed on top of the photograph, map or drawing. Each of the subsequent layers contains some common but also some new lines in relation to the previous and/or subsequent drawing. Hence, the drawing bears and, in many cases, also generates<sup>9</sup> information, from understandings and conceptualisations, thus taking on the qualities of “drawing forth” that Jonathan Hill explains.<sup>10</sup>

One issue here is the experience of drawing referred above, and another is the drawing as representation available to others for interpretation. Architectural drawings, as Steen Eiler Rasmussen points out, are cold and far from the experience of the referent.<sup>11</sup> Nonetheless, there have been attempts to connect the Cartesian conventions of architectural drawing to experience by deploying symbols in the drawing that facilitates the reader to interpret the drawing. The representations presenting the limits in the case studies have adopted and experimented with some of these conventions. Among architects, there is the convention to show-wherever possible- drawings with the north point facing up or to add a north point if not. A reader, who has some understanding of sun paths, cardinal points and the local weather can identify the journey of the sun through space throughout the day and seasons, enabling her to distinguish which areas will be occupied by people in winter or summer, where plants will thrive or struggle and how the shadows resulting from the movement of the sun will define and redefine the space throughout the year. Another technique is to “inhabit the drawing”, referring to the practice of including images of people, bikes, trees and more in the drawing in order to “inhabit” the drawn space. The introduction of these images, on the other hand, encourages the reader to animate the drawing in her mind, based on her own previous experience of the environment. On the other hand it allows her to measure and quantify things based on her own knowledge of some of these objects included, in relation to the proposed space. Another technique is to colour or codify sky, water, vegetation and so on by matching how these are experienced in the world to simplify the reading and subtly guide the eye through the drawing. Drawings are also annotated which helps interpretation. Despite the fact that these annotations are words, they may trigger past memories relating to already built places, which aids the imagining of the new proposals. Most of the conventions noted above are shared knowledge and practice among architects. However, the years an architect takes to learn these conventions should not be underestimated, nor the skill of interpreting and communicating through drawing. This may be a

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<sup>9</sup> Edward S. Casey refers to bearing and generating of the edge in *The World on Edge* (Bloomington, Indiana: Indiana University Press, 2017) p71. However, due to its design nature, this research has revealed that lines bear and generate while the limit contests and reflects yet both pairs are interrelated.

<sup>10</sup> Jonathan Hill, ‘Drawing Forth Immaterial Architecture’, *Architectural Research Quarterly*, 10:1 (2006a), pp.51-55 (p51) and ‘Drawing Research’, *The Journal of Architecture*, 1:3 (2006b), pp329-333.

<sup>11</sup> Steen Eiler Rasmussen, *Experiencing Architecture* 3<sup>rd</sup> edn (Cambridge: The M.I.T. Press, 1978) p14.



limitation to non-architects confining their engagement with the drawings to a certain level.

The techniques discussed above are deployed in the drawings representing the limits of the case studies. In principle, architectural drawings are disassociated from inhabitation and the viewer. Although the above techniques seem technical, they are part of the world and they are deployed as mundane elements that we can all empathise with through experience. They seek to make drawings more accessible, at least to those who know the conventions, encouraging the interpreter to read from and through imaginary inhabitation based on past lived-experiences of places, the body or other ordinary elements. The ability to deploy imaginary inhabitation varies from person to person and architects will have distinctive experiences here as they bring their professional experience to bear.

### **Experienced Lines and the Represented Lines**

Most drawings are constituted mainly of lines. These are marks on paper correlating with our depictions based on or influenced by our experiences. The limit is inherent to the line and this study looks for the line that reveals the inner necessity that is able to generate and bear: what Tim Ingold calls the abstract line. This may include lines of diverse nature: the geometric lines which link, for example, and/or the organic line that separate.<sup>12</sup> Nonetheless, these lines, which in the world per se do not exist but we learn to see them, enable us to move between the two worlds.<sup>13</sup> When I see the world, I may see through lines or not, but usually I am not aware of them. When I draw I need to decide which lines to trace, what they correlate to in the world, what they depict and mean. Thus, the act of drawing and its implicit experience allows me to move between the world of forms to the world of ideas and back to the world of forms. The drawn lines are conceptualised, or at least carry a degree of abstraction, distancing the drawing from the things themselves but this simultaneously is tangible, moving them closer to the world itself. I, placed on the bordering siege, deploy the line as medium (means)<sup>14</sup> mediating the sieges of appearances and the hermetic siege. The line, within the established theoretical and practical framework, is tangible and abstract, specific and versatile, separating and uniting, static and dynamic, bearing and generative, simple and complex. This line has attributes that are very close to the definition of the limit.

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<sup>12</sup> Tim Ingold, 'Looking for Lines in Nature', *Earthlines*, vol.3 (2012), pp.49-50.

<sup>13</sup> Ibid., Ingold quotes Maurice Merleau-Ponty, who uses Leonardo da Vinci's words saying: This line "is not here nor there, neither in this place nor that, but always between or behind whatever we fix our eyes upon".

<sup>14</sup> Or the line that bears and generates, in a similar manner to the drawing forth by Jonathan Hill, 'Drawing Forth Immaterial Architecture' and 'Drawing Research'.

The drawn line is tangible as I can trace over it with my finger or pencil, but it is just a depiction of the thing, a representation implicitly abstract. It seems specific, as it correlates with something tangible, but it is versatile as it can represent manifold things simultaneously. The line may be the end as well as the beginning of something or it may help to mediate different things. A line unites two or more points, presenting itself with a static form but while it is drawn or made,<sup>15</sup> it reveals itself through its movement with implied embedded energy. This becomes an element to be travelled through instead of experienced only in its transverse dimension or as a static element. The line may bear but also can generate; this may relate to the line of the architect. The line inherently encloses-in-itself bearing characteristics and meanings as well as generating establishing relations and being propositional. Lines are simple to our eyes. In the first instance, we read lines as edges with unilateral qualities but after pondering on them, other qualities and relations are revealed to us making them extremely rich and complex. Furthermore, the drawn line is a topological line and a line of enquiry. This is the line of the limit, which carries the attributes of the definition of the limit presented in chapter 1.4. The drawing exploration allowed for examining these in architecture and urban design and advance the definition, the understanding of the attributes and the dynamics between them. The line has *presence* and operates in and within the three sieges; I experience it through the drawing-experience (siege of appearing), I draw it in a codified manner (hermetic siege), and it enables me to think while transcending the experiences and the representations (bordering siege).

Thus, the limit is latent in the line of the representations of the limits of the case studies. Limits a priori, before engaging or experiencing them, can be drawn with simple lines such as the line of the kerb marking the change of level between the pavement and the vehicle lane, the line of the façade or the thin line indicating the change of floor surface. However, each of these lines, once drawn from the perspective of the limit as described above, reveal other associated lines, perhaps of different hierarchies or ones that work together with other already drawn line/s creating a limit. Then, the limit displays as a strip that accommodates multiple lines. Furthermore, these lines may be related to other nearby lines that are part of the drawing which may represent limits or not. Hence, a limit is a strip, a recognisable entity, that is related and works with other parts or limits and its reading in isolation, revealing just part of it.

Many of the drawings representing the limits of the case studies are tracings over photographs or maps where lines were seen and selected based on the attributes of the limit presented in Part 1, 1.4. Through that experience, I learned to identify the lines that reveal their inner

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<sup>15</sup> In the sense Ingold reflects on the geometric-organic lines. Lines made while walking, by the slugs or making it with a pen or a stick on the sand.

necessity leaving appearances aside, although the case study *Jardins de Lina Òdena* was drawn in AutoCAD without involving any tracing in the traditional sense to provide the location of the lines. This exercise revealed that I first had to draw the limits and the other lines will be drawn and located from the limits. It can be questioned whether most of the lines of that drawing are one type of limit or another, hence these are drawn in relation to each other and the whole. Thus, the architect is habituated to draw the limits in an intuitive way and rely on them. These are the lines that locate, generate and bear.

Whilst drawing, the lines of the limits are codified. In the urban case studies, due to the complexity of the limits and interrelations between limits, it is challenging to codify them consistently, correlating between representations. The limit may be defined by elements that are on the floor or a few meters from it. Furthermore, the line that limits the surface is relevant as it works against or in conjunction with another surface at a different level. Thus, the representations of the limit have evolved, as through the drawing-experience I codified, de-codified and re-codified one limit and another posing distinct challenges. Indeed, the representation seeking to record the complexity of the experience of the limit moved to a codification system that resembles musical notation (2.2.124, 2.2.212). The represented codification of lines creates a system centring the eyes and mind of the interpreter providing hierarchy within lines on one drawing. Furthermore, the layering technique allows for a sequence of drawings with sequences of lines to be experienced on the drawing separately and in relation to the other, portraying the idea and hierarchy of the experiences. The reader grasps their generating and bearing ability in an intuitive way as well as the discrepancies and similarities or synergies between line types and lines.

### **Frames-in-the-world and Drawings as Frames**

Each drawing is a framed view of the world and this is particular and partial, resembling photographs, which are themselves selected views of the world. We experience the world through an indeterminate concatenation of frames, moving from the general to the focused view, framing what it is beyond or nearby, and then back again to the long-distance or close-up view, all presented in a messy and uncontrolled manner. While drawing, I have a similar experience where one drawing evokes another, making me move between framed views. Sometimes these can be dispersed by moving between a distant to a close or general panoramic view or between spaces. At other times, the evocativeness of a first drawing takes me to a second drawing of the same view but framing it differently.

These frames are part of a journey, which can be conveyed through a sequence of drawings which present spatio-temporal qualities of drawing and experiencing. Hence, the technique of the sequence includes both allowing the limit to present itself through representation as an entity with its own properties, as well as presenting itself as part of a whole. Thus, the sequence of drawings allows the limit to reveal itself as double in nature, multiple, reflective and contested and topological. This technique also enables us to display the attribute of fluctuation and change only perceived through time and, in comparison with the *before, now* and *after* situations. Although, this technique shows a limit that is ambiguous in the sense that we cannot fix it in place, sometimes it is a perimeter, but then in a different frame it acts as border or even a boundary. This may show its asymmetry informed by internal or external forces from within or outside.

Many of the drawings of the case studies are diagrams, containing solely isolated information, seen as individual frames, assuming a high degree of abstraction moving from the physical, lived world to the world of ideas. In some diagrams, the drawn lines are as evocative as the missing lines. The missing lines in a drawing may become the generative ones in another drawing. Each drawing of the same or different view provides a particular interpretation related to a fragment. The different drawings are complementary providing a multiplicity of representations allowing me to reach and explain the multifaceted limit. Besides, reframing allows me to overcome the partialness and subjectivity of the uniqueness of a drawing.

In many cases, drawings in relation to the same view, and ones as a result of different frames, are presented sequentially or beside each other. Both techniques mimic our experience in the world, how we see it; *here, there* and *over there*, all separated but together. The drawings are presented beside written reflections upon the drawing to guide the reader, but more importantly for me as the researcher to reconcile knowledge (practice-theory) and the appearance-siege and the hermetic-siege.

### **Zooming In/Out and the Scale of Drawings**

As mentioned above, a limit in one drawing reveals itself as a perimeter, in a second drawing with a different framing it features as boundary, and it is re-read again in further re-framing and re-drawing. The reframing, here, refers to a change of view moving from the general to the detail, determining the amount of world framed in the view, which changes correlating with the

scale. Scale is a technique that the architect deploys to relate the representation of elements to how these are in the world.

To scale means that the proportions of, and between, the represented elements are in keeping with proportions in the world as interpreted mathematically. Therefore, due to this consistency in the representation, any drawing to scale allows this to be related and/or compared to other drawings at a different scale. The scale determines the amount of detail and area that can be covered. Scale is one of the architectural drawing conventions and in this study, scale has allowed me to enquire into the limit and to reveal the limit more fully when many different scales are covered. The representations of the limits of the case studies reveal that the large (1:1000 and above) and the detail (lower than 1:20) scales reveal simple limits in the sense that they could be classified and represented with one or a few lines. However, at the large scale, how a limit is reflective and/or contested may be revealed and also how it locates and is located by other limits displaying its topological nature. The detail scale reveals limits as edges associated to elements and materials.

Nonetheless, the limits at a middle scale, encompassing a wide range of scales between 1:1000 and 1:50, tend to be multifaceted unveiling their highest level of richness and intricacy. The middle scale relates to inhabitation triggering our memories of our lived-experience vividly when compared to the other scales. This also applies to the drawing as artefact and how it is read by the interpreter.

The full range of scales, correlating with different framing and re-framing, reveals the diverse facets of a limit and its topological nature. The exploration through drawing unveiled the limit of the façade of the block as a single and multiple lines, as perimeter, edge, boundary and border. The limit unfolded into another type at the change of scales and each was revealed as reflective and contested but in a particular manner, showing them to be multifaceted. Thus, the limit cannot be encapsulated and understood from one view, frame or drawing alone but rather from multiple ones. In the same way, it is dangerous a priori to fix a limit as a border, boundary, rim or edge as it may be all of them or instead just a few. However, these are displayed at different points, views and moments and perhaps for different users with diverse needs, wills and ties to the place. Thus, the network of limits proposed by the geo-political thinkers is comprehended as well as the topological nature of the limit; another way in which it fluctuates and a reason why the limit is experienced as ambiguous.

### Positioning of the Viewer

The above illustrates that drawings are defined by their spatio-temporal qualities and the inhabitant. Architectural drawings have removed the inhabitant, the observer or the drawer but the limit takes a different meaning and representation when the inhabitant is reintroduced. Thus, the reading of a limit from either side of the limit is revealed differently. This was the case at *Jardins de Lina Òdena* (2.2.193-195), where the limits for the visitor and the resident differ. Something similar was learned when the limits for the pedestrian walking along the pavement were drawn in relation to the limits for the resident of one of the flats above (2.2.149). The entrance-linkages of *L'illa Diagonal* in this study only cover one direction but these act as a membrane providing experiences and a degree of openness in each direction (2.2.93-138).

The simple act of introducing the figure of a body onto the drawing made the limits react, as directionality is added. Delineating the coverage of the figure's sightlines with dotted lines revealed the hierarchy of the lines within and between the limits, locating the figure. Thus, the limit is determined by the inhabitant and their position in the place where the limit displays itself, influenced by the forces from outside it and from within. This resembles the descriptions by Trías of the frontier, where the limit suffered the forces from the centre (the Romans), the space beyond the frontier (The Barbarians) and the *limitanei* who inhabited the limit itself. Therefore, when the inhabitant moves position the limit mutates and, in some cases, changes with them in a similar way to how the horizon alters. The limit is bounded by space, time and the inhabitant.

### Time in the Experience of Drawing and Time in the Drawing

As introduced in chapter 2.1, drawing is temporal in different ways. It is temporal in the sense that it includes the experience of the act of drawing and drawing as an act of dwelling and making. The experience of drawing makes it easier to concentrate on the present through the "reverie" of drawing,<sup>16</sup> losing oneself in the moment, in the act of drawing. The drawing encapsulates the experience of drawing; the time it takes to make it including the possible intervening drawings or attempts leading to the last (but not final) drawing. They also include the circumstances within which the drawing was made determining, in one way or another, the end result. What has been read prior or during the making of the drawing as well as the medium, size and type of paper or pens and pencils utilised to make the drawing affects and

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<sup>16</sup> Gaston Bachelard, *The Poetics of Reverie. Childhood, Language, and the Cosmos* (Boston: Beacon Press, 1971).

determines the drawing.

The drawing as representation is like a repository of the past to serve the future. It embodies the experience in making the drawing, in seeing as well as the knowledge gained in the past whilst looking forward to the future informing other interpretations, understandings and representations.

### **The Limit from the Representation of the Limits of the Case Studies**

The enquiry of the limit of the case studies through their graphic representation has uncovered the working definition and the attributes presented in Part 1, 1.4 in detail and in certain clarity. The uncovering has taken place through the graphic representations themselves and the act of drawing with its inherent reflections. Firstly, this enquiry has enabled a better understanding about what a limit is and its inherent dynamics. Secondly, it has allowed comprehension of what the attributes mean, their scope and how they interrelate. And thirdly, to fully grasp some of the concepts and theories discussed in Part 1, understanding their meaning, how they present to us (displaying) and application as part of or in relation to the limit in the built environment.

It can be concluded that the working definition of the limit presented in Part 1 has evolved to the following: The limit in the representation of the case studies is an inhabitable strip. In many cases, the strip made space for revealing a double limit constituted of multiple lines. The limit is not just double in its physiognomy but has a double nature. It is a join and a disjunction, meaning it presents simultaneously as *limes* and *limen*. On the one hand, the limit separates to create and protect its identity and the limit as an entity. On the other hand, the limit mediates, willing to link the things it separates. The limit aims for an equilibrium between the two, although this is continuously affected by internal and external forces making the equilibrium fragile and temporarily causing the limit to fluctuate. The multiple lines of the limit bear and generate in the sense that they hold meaning and are affected by external aspects or things, along with being able to influence and redefine those external aspects and things. Similarly, the limit, structured by these bearing and generating lines, reveals itself to be reflective and contested; able to influence and determine itself and other aspects and things, but is also determined by other aspects and things. The degree of reflectiveness and contestedness of a limit does not display as a pair with symmetry of equal intensity. The same can be said about the bearing and the generating of its lines. Thus, the limit displays asymmetry, due to it being a strip with a double limit; one at each side. These are contested and reflective with the forces

affecting the limit from each side from outside into both sides of the limit; the forces may differ as well as the consequent resistance from each side resulting in an asymmetry. The limit is revealed as multifaceted meaning that it is multidimensional both spatially and temporally. Many of the limits in the change of scale or re-framing reveal themselves differently. One limit, as an example, was catalogued as a perimeter, then revealed as a boundary and then as a border. Thus, the reflecting and contesting of the limit, as well as the bearing and generating of its lines varies, presents a multifaceted limit and this is part of its topological nature. Moreover, aside from a limit displaying in a distinct way depending on the scale, this is read alongside or in contrast to other limits within the same or parallel views as part of a network of limits. Then, the limit is also revealed as ambiguous, not just because in some cases we see the limit but the clarity vanishes when this needs to be fixed by the lines of the drawings due to its variation through time adapting to the ever-changing forces. Moreover, it also displays differently in the change of scale adding another type and level of variation. And lastly, each limit is unique and multiple and there is not just a limit but limits.

The representation of the limits substantiates the limit as a notion with multiple variations and adaptations based on the distinct display of its attributes and qualities. Here the attributes are presented based on the representations and their reflections that advance and clarify the ones presented in Part 1, 1.4, based on theory and the descriptions of the case studies:

1. **Strip.** The introduction of all case studies present limits of single lines (Inlet 2.2.3-6, 2.2.11-2.2.14; *L'illa* 2.2.66, 2.2.67; The Block 2.2.140, 2.2.173) corresponding with limits at large scale. However, all these single lines in the change of scale make space for translating into multiple lines defining an inhabitable strip resulting in a double limit. In the Inlet, the single line presented in 2.2.14 translates into 2.2.25, constituted of multiple lines. *L'illa* representation 2.2.66 translates into 2.2.68 and 2.2.69 where each section correlates with several lines similar to the ones presented in 2.2.149. In the Block, the single line of the axis in 2.2.140 is already the juxtaposition of two identical invisible limits until it rains and the single limits in 2.2.173 translate into 2.2.149 and 2.2.161. All these limits present multiple lines in the sense that there are more than one, and they are distinctive. The representation of these limits has not been inhabited but this can be imagined, and the supporting images encourage it. Other limits in the three cases studies at the middle and detail scales directly present the limit with the qualities of a strip. Some examples are; in the Inlet, the rock-sand-water in 2.2.40-41, the stream in 2.2.51 and 2.2.56; in *L'illa*, the three linkages-entrances in 2.2.102, 2.2.25 and 2.2.131 & 133.



**2. Join & Disjunction.** This attribute directly relates to the nature of the limit as *limen* and *limes*; as threshold or border where something begins and allows for contrasting with the boundary, where something ends. A priori these seem contradictory, hence they display in a complex way aiming for an optimum balance between them which is unique to each limit. The representation of the edge of the stream in the Inlet case (2.2.56) is revealed as a border providing a timid understanding of the limit displaying as *limes* and *limen* simultaneously in its cross section. Nevertheless, the linkages-entrances of the *L'illa* case study are complex, unveiling the notion of the *limes* and *limen* by briefly isolating them (2.2.25 and 2.2.131 & 133). This exercise allowed me to question each separately, to understand the dynamics of each and their relation. This is a special case, revealing, with certain clarity through the drawing, the sophisticated balance between both-*limes* and *limen*- and in some cases, this limit is referred to as a hinge. The linkage mediates and links displaying in the direction of the movement, whereas the entrance separates, providing a certain degree of resistance to the movement displaying in the direction of the façade. It required an understanding in plan, section and elevation, even though the diagrams are in plan and collect information better recorded in section. The juxtaposition and dynamics between them are sophisticated aiming to reach an equilibrium. It is a case where the notion of the threshold and more accurately of the liminal is latent. In the case study of the Block, the limit of the kerb (2.2.160-163) helped to reflect on this attribute as a consequence of the relationship (limit) between the pavement and road area and articulating the limits of the façade and the axis (2.2.149-150), and with this interrelating the urban scale to the block and human scale. The transition area, the green area iii and the layering (2.2.205-2.2.212) explore and reflect on the fine and temporary balance between the joining and separating to mediate a space. This was explored in plans at several scales providing different degrees of accuracy and abstraction in section and using the layering as a technique.

**3. Reflective and Contested.** At large scale, the representation of the limit of the coastlines in the Inlet (2.2.3-6, 2.2.14), the *Avinguda Diagonal*, the superblock and the linkages in *L'illa* (2.2.66, 2.2.77, 2.2.92) and the perimeters and axis in the Block (2.2.173) are represented and read as single lines. Each has a meaning and role/s based on what it represents- it bears, whereas it also determines or can determine other limits, things or itself meaning that it generates. The case of the perimeter block, just as one example, is simple to understand in terms of what it bears and generates and at the large scale where the bearing is stronger

than the generating (2.2.148). However, in the change of scale, the single line becomes multiple (blue lines in 2.2.165) and each adopts their own bearing and generating (2.2.149, where the perimeter block is redefined by others changing it). One line determines itself and others, one line exists because of itself and/or others and the others can be lines within the same limit or forces from outside. One line may be revealed more strongly, with more intensity or dependency than another, as they are individual but also part of an entity and a whole. The limit, as entity, in a similar way to its lines bearing and generating, is contested and reflective. The perimeter block at a middle scale is contested by the pavement and the kerb and from the other side by the private space and ownership. The perimeter block, now more appropriately named the *façade*, determines itself in relation to the two situations it mediates (joins and separates); the pavement and the private ownership displaying its reflectiveness. Thus, the limit of the perimeter block representing the limit as a single line, as limit, is reflective and contested. The other examples mentioned above disclose in a comparable manner. The bearing and generating line and the contested and reflective limit started to be disclosed in the Inlet case study but this was understood in the subsequent case studies. The line and the limit of the section of the Inlet (2.2.26), the lines and the limit of the rock-sand-water (2.2.40-41) and of the eastern edge of the stream bear and are reflective, generate and are contested. It was in the *L'illa* case study, and more specifically in the last two linkages-entrances, when these terms were better understood in relation to the lines and limits. There is an internal relationship between the lines and the limit constituted by these lines and understanding that the limit reveals in a diverse way but coherently at different scales, and the lines admit the changes accordingly. It was in the Block case study where this understanding led to some of the questioning in the making of the drawings and the associated reflections.

4. **Topological.** The representation of the limit reveals this as multiple. There is not just one limit but many, in a double sense. Firstly, no two limits are the same, each is unique. This is shown in the way the limit reveals its attributes and the interrelation between them defining the limit as an entity. However, the limit in drawing can be isolated, but this is part of a whole and it is determined and influenced by other elements of the whole making it unique. Secondly, most limits reveal themselves differently at the change of scale, reframe or view point. A limit at one scale reveals as a perimeter and then, at a smaller scale, as a boundary and finally, perhaps as a border. An example already mentioned is the perimeter block revealed as perimeter, boundary and border. This is a bland line that bounds a portion of space separating from what it is not bounded and joining what it bounds. However,

it coexists with other limits positioning them and being positioned by them; these are the axis, the kerb (another perimeter at the large scale) and the inner perimeter of the block (2.2.141, 2.2.148, 2.2.167, 2.2.170, 2.2.173). Furthermore, in the change of scale, the perimeter block instead reads as a boundary that positions and determines the kerb. Then, it discloses as a border, or more appropriately said as a membrane, due to the contestedness of two realms, one from each side. Thus, the limit is multifaceted spatially and temporally, able to redefine itself unfolding across scales, re-frames and/or views remaining coherent and dependent on the self and the whole. In addition to the unfolding, as mentioned above, the limit is able to position and be positioned by other limits revealing a relative position and interdependence determining a network of limits. This was revealed in the limits referred to above as well as in the limit of the *Avinguda Diagonal* and the positioning of the linkages-entrances in the superblock and *L'illa* building.

- 5. Asymmetrical.** The limit is double and therefore able to admit asymmetry. Besides, the limit sits between conditions which are independent and influence it. The limit also proposes and reacts in relation to the conditions to reach a temporal balance. Thus, the result in these conditions and movements is asymmetry. The opposite façades of the inlet, the rock-water-sand limits and the western edge of the stream, to name a few, display asymmetries. The *Avinguda Diagonal* sections show a different degree of asymmetry inferred from the external particular conditions edging the limit. The linkages-entrances in *L'illa* case reveal a double asymmetry due to the two directions. The kerb, the façade or any of the presented perimeters present asymmetry. In all cases asymmetry presents as a result of the encountering of conditions that the limit mediates. Although, in most of the cases the multiple lines of one side of the limit find a twin line on the other side. The twin line is very similar but different.
- 6. Fluctuation.** The limit modifies spatially and through time due to three reasons: firstly because of its nature as mediator (*limes-limen*), secondly in relation to the limit's reflectiveness and contestedness aiming to reach a fine balance between internal and/or external forces and thirdly because this unfolds across scales, re-framing and views taking different meaning and roles. This fluctuation is due to the gradual and coherent changes to the varied parts of the whole and itself. The inlet shows the obvious fluctuation of the waves, connected to weather conditions or rhythmic fluctuations related to day and night, seasons, years, sun and moon. Other imperceptible changes ending in fluctuations include the erosion of the rock due to the intrusion of water. However, in the drawing of the limits,

the changes considered were the ones presented above and the shadow in *L'illa* superblock modifying the initial limit (2.2.82-3). Hence, the limit is fixed with a drawing, but the lines suggest reflections on the nature of the fluctuation. The diagrams that resemble a staff of music suggest a partial reading involving time (2.2.109, 2.2.124, 2.2.212).

- 7. Ambiguity** The limit displays ambiguity due to its topological nature. Specifically, being multifaceted and additionally, being a join and a disjunction, reflective and contested, fluctuating and asymmetrical. The limit is active and reactive within short periods of time and it is difficult to halt it. The ambiguity perceived during the lived-experiences and again revealed in the descriptions is justified in the drawing-experience but not so much manifested in the graphic representations.

The three case studies are diverse, yet they complement each other well for this research, providing a wide range of limits and challenges. My understanding of the limit progressed as my exploration moved on within and from one case to another. Thus, the graphic representations are not final representations of the limit, yet together with the explanations made as part of the enquiry process, they allow the limit to be revealed. The Inlet presents more immediate aspects of the limit and in this case study there were attempts to frame the limit, questioning what constitutes a limit. The lack of precise measurement in relation to the other cases made this challenging and encouraged me to reflect on basic aspects such as scale and understanding based on visual relationships. The urban case studies differ between them due to their remit and role in relation to their interaction within a larger or smaller range of urban scales. *L'illa Diagonal* covers land uses of a higher degree of publicness than the *Jardins de Lina Òdena*, like the market, shopping center, hotel and so on. Hence, a priori, it presents more fluctuation and ambiguous limits resembling the Inlet, like the *Avinguda Diagonal* and the three linkages-entrances. On the contrary, the *Jardins de Lina Òdena* includes residential as the main use. Retail and commercial as secondary uses reveal more tangible and stronger limits in the sense that there is a clear here and there with a line differentiating them. These were easier to point out, nonetheless, to begin with read as banal, taking drawing and reflection to unveil the attributes. An example were the perimeters unfolding at the changes of scale and a different understanding was displayed with the introduction of the viewer into the drawing, focusing the reflections.

The graphic representations of the limit differ from how the limits are experienced-in-the-world. These contain a high degree of selection and abstraction implicit in them allowing for conceptualization and to reach the limit from diverse modes. Despite the graphic representation

of the limit being removed from the lived-experience (experienced-in-the-world) of the limit, is a valid approach, allowing us to reach the concealment explained by Heidegger. The drawings disclose the *presencing* and the gathering of the limits that otherwise would not be revealed and fully understood. The virtue of the graphic representations lies in their “unlikeness” between the “thing itself” and its experience-in-the-world as Robin Evans pointed out. However, they rely on the ability of the researcher, and then the reader, reading into the drawings, even to reach the moment where “evocativeness” takes over and can correlate the representations with the thing experienced-in-the-world.

The limit reveals the best and worst of each element. The characteristics of the elements are disclosed at the limit. The representation of the limit reveals that the limit is a good place to learn about things, providing a pedagogical opportunity, overcoming mere appearances. It is akin to getting to know somebody not just through their appearance but through their actions, reactions and movements. Based on first impressions, and despite leaving aside any preconceptions,<sup>17</sup> we create an initial idea of the person which in many cases gets redefined as we get to share time and experiences with them. The limit is the place where things act, react and move, exposing their nature, offering opportunities for comprehension and drawing allowed for these to display.

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<sup>17</sup> It can be questioned to what extent we leave preconceptions aside completely. On many occasions we are not even aware of them until they are revealed to us when the person surprises us by acting in an expected manner.





# Conclusion







## The Experiential Limit in Architecture and Urban Design

This thesis has examined the architectural representation of the visual and physical experiential limit in architecture and urban design, exploring its multiple and complex ambiguities. Part 1 presented an analysis of canonical texts in urban design in relation to the limit, descriptions of three case studies, two urban and one landscape, accounting for my experience of limits in the environment, and a review of selected literature on the idea of the limit in philosophy, anthropology and socio-political literature informed by the case study descriptions and urban design thinkers. It concluded by proposing a working definition of the limit as it is experienced in the world. This working definition was greatly influenced by Eugenio Trías Sagnier's 'Philosophy of the Limit', which draws from Martin Heidegger's work, in conjunction with the idea of the liminal in anthropology, and reflections on the geo-political idea of the border.

Thereafter, Part 2 enquired into the architectural graphic representation of the experiential limit, informed by the working definition of the limit provided in Part 1. This was preceded in chapter 2.1 with an exploration of the conventions of representation considering drawing as a medium to see, enquire and propose, and as noun and verb. It reflects upon the line intrinsic to the limit and this as the main tool and means to "draw forth". It also briefly reviewed the scope of the notational system as part of the process of enquiry and within the practice of architecture and urban design. The following chapter 2.2 presented the explorations and reflections of the graphic representation of the experiential limit in the three case studies, for which descriptions of the limits were presented in Part 1. The exploration of the limit through graphic representations and associated experiences allowed for the limit to be revealed in a complementary mode to the descriptions, deploying architectural drawing as a technique and the process of drawing as a method of enquiry based on the working definition of the experiential limit provided in Part 1, 1.4. The final chapter of Part 2 presented interim conclusions outlined in seven points based on the experience of representing limits and their modes of representation. The final point presented the refined definition of the experiential limit in the working definition presented in the interim conclusions of Part 1, 1.4.

This concluding chapter firstly reflects on the progression of the definition of the experiential limit and its attributes in architecture and urban design, based on the lessons learned through

the case studies and theories presented in Part 1 and Part 2. Secondly, the limitations of the research in relation to experience, language, drawing and the line follow. Thirdly, it presents a succinct re-delineation of the theories and views on the limit proposed by the canonical urban design thinkers. And, it ends by suggesting a limit from which to think and propose in architecture and urban design.

## **The Limit in Experience and Representation**

My aim in this thesis has been to research how the delineation of limits is experienced in the world, in relation to how they are delineated in architecture and urban design drawing.

I defined the limit here as a positive, recognisable, inhabitable, spatio-temporal, asymmetrical, ambiguous, fluctuating, and reflective and contested strip. This “strip” consists of multiple lines and presents a double limit with double nature, able to mediate and integrate, while simultaneously separating and disconnecting. Importantly, the limit conceived in this way is a join and a disjunction. The limit, here, is an entity in itself, yet it is “topological”. Despite being an entity with its own attributes, some are influenced and determined by other elements including other limits, whilst the limit is also able to influence and determine others. Moreover, it is revealed as multiple at the unfolding of scale or reframing, presents differently yet coherently and interdependently between itself and the network of limits. Thus the limit is multifaceted temporally and spatially.

I have discovered that there is what I have called a double gap in relation to the primary aim, questioning how the delineation of limits is experienced in the world in relation to their delineation in drawing. The first gap became apparent from a review of urban design literature, which revealed not only the relevance of the edge or boundary- or more correctly the “limit”- in the built environment,<sup>1</sup> but its lack of a clear definition.<sup>2</sup> The limit has thus previously been understood largely through examples, discussed according to a variety of associated terms but with little or no correlation between authors. The second gap relates to the representation

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<sup>1</sup> Authors as such as Jan Gehl and Christopher Alexander state that if the boundary fails the space fails. Gehl, Alexander and Quentin Stevens refer to the “edge effect” coined by Derk de Jonge, explaining how people locate themselves in space in relation to limits determining inhabitation and activities. The authors mentioned previously and others like Jane Jacobs, Larry Ford, Miloš Bobić, Kevin Lynch and Edward T. White recognise the relevance of the boundary in public space.

<sup>2</sup> The review of the urban thinkers presented in chapter 1.1, ‘The Idea of the Limit,’ concludes that the limit is a physical and/or psychological spatio-temporal entity which can be inhabited. It is selective and asymmetric taking a privileged location, able to separate as well as to establish relations, able to attract and repel and able to deal even to harmonise tensions.

of the experiential limit in architecture and urban design drawings. Architectural drawings are characterised by lines in which the limit is tacit. However, the limit is not experienced as a line beyond the drawing. Furthermore, Robin Evans and others<sup>3</sup> describe the gap between architectural drawing and the buildings they seek to represent, noting that drawings are mere representations of the thing they illustrate.

This research has followed phenomenological design research methods, positioning research in architecture and urban design at the intersection between phenomenological research and design research. It has analysed the world outwards from experience. Phenomenology is the study of the structures of conscious experience in the first person. It is the study of “phenomena”; the study of things as they appear to us, things manifesting to us or the way we experience things, allowing us “to return to the things themselves”.<sup>4</sup> Heidegger argues that things present themselves to us, but they do not always reveal themselves to us as they are.<sup>5</sup> This depends on the mode of access or appearance we have in relation to them. Thus, it is relevant to study how things are presented to us and concealed from us. Consequently, this research has been based on my own experience in the world, specifically in relation to the limits of the three case studies: two urban cases in the city of Barcelona and one landscape case study sited in an inlet on the island of Mallorca, selected for their complementarity and wide range of urban and landscape limits, which have provided rich, varied lived-experiences that do not let me simply accept the first mode of appearance.

Following this methodology, the limits present in the case studies were described and illustrated in this thesis as they appeared to me “in the world”, firstly in the mode of lived-experience, and secondly in the modes of descriptions and drawings. I have understood the experience of drawing here as comparable to the experience of writing whereby, at some moments, the writing itself drives the process and one aspect leads to another or one approach leads to another. This phenomenon, often referred to as evocativeness, demonstrates both agency and the abdication of agency on the part of the author, who can identify the thing but also to let it speak, display and reveal itself. It relates to literatures on practice-based and practice-led

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<sup>3</sup> Robin Evans, *The Projective Cast. Architecture and Its Three Geometries* (Cambridge, Massachusetts; London, England: The MIT Press, 2000), p.154. Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and The Perspective Hinge* (Cambridge, Massachusetts, London, England: The MIT Press, 1997), and Jonathan Hill, ‘Drawing Forth Immaterial Architecture’, *Architectural Research Quarterly*, 10:1 (2006a), pp.51-55.

<sup>4</sup> Sentence attributed to Edmund Husserl.

<sup>5</sup> Dermot Moran, *Introduction to Phenomenology* (Abingdon, Oxon & New York: Routledge, 2000) p.229, based on Heidegger’s book “Being and Time”.

research.<sup>6</sup> Thus, this research is both grounded in phenomenological methods and draws from design research. Despite not leading to a classic design outcome in the sense of a resolved design proposition, it presents research “through design”, understanding the process of drawing itself as mode of inquiry.

In the second part of the research, drawing took centre stage as the primary medium of inquiry, informed by my lived-experience and the descriptions of the case studies, in conjunction with literatures of the limit drawn from urban design, philosophy, anthropology and cultural studies. Drawing was employed to disclose (in Heideggerian terms) the notion of the experiential limit, assessing to what extent the experience of limits “in the world” can be depicted in architectural drawings, attempting to interpret the complexity of the human experience of limits in architecture and urban design. Thus, this research deployed the power and potential of drawing not just to communicate or record, but also to remember and conceptualise. Specifically, drawing was employed as “drawing forth”,<sup>7</sup> whereas the lines of the drawing bear and generate,<sup>8</sup> as a means to enquire and propose, to bridge mind and object.<sup>9</sup>

Descriptions and drawings are both depictions of the world and both take place through experience. Descriptions are the outcome of the writing-experience in the medium of words, whereas drawings are the outcome of the drawing-experience and their medium is primarily the line. The drawing-experience is comparable to the writing-experience, and it allowed for introspective and intense reflection upon the limit. However, each also has its own distinctive modus operandi, writing is linear while drawing is non-linear. The latter allows for juxtaposition and/or layering and to jump between scales or types of architectural drawings (plan and section), allowing us to see things afresh.

Through this process, I discovered that the “evocativeness” of drawing has potential for the limit to manifest its “thingness” (again, in Heideggerian terms) and reveal what is concealed. The first line of the first drawing is difficult, but when this is drawn it evokes other lines and so the

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<sup>6</sup> Christopher Frayling ‘Research in Art and Design’, *London Royal College of Art Research Papers*, 1/1 (1993/4).

<sup>7</sup> Jonathan Hill, ‘Drawing Forth Immaterial Architecture’, *Architectural Research Quarterly*, 10:1 (2006a), pp.51-55

<sup>8</sup> Edward S. Casey, in his recent book *The World on the Edge* (Indiana: Indiana University Press, 2017), deploys these attributes to the edge, here called limit, However, these terms- bearing and generating- in this research apply to the lines of the drawing enabling the “drawing forth”.

<sup>9</sup> This refers to Heidegger’s idea of the “thing” that gathers and displays its concealment through the modes of appearing. And to Trías’ proposal that we, from the bordering siege (from the Spanish word *cerco* referring to the line that defines the limit- similar to the line of the horizon) are the hinge that mediates the siege of appearance (world) and the hermeneutic siege (world of ideas, unworldliness).

process gradually unfolds through the experience of drawing. In a similar manner, one drawing evokes another and another. It is marked by the experience of the drawing talking back to me, questioning and revealing.<sup>10</sup> As part of this process, I reach a moment when I lose consciousness of the effort of drawing. The experience of drawing here becomes a kind of reverie.<sup>11</sup> This “drawing forth” implicates Tim Ingold’s three types of lines, allowing organic and geometric lines to be conceived as abstract lines<sup>12</sup> that simultaneously bear and generate. The limit – in the experience of drawing – both contests and reflects. The lines seem to disclose both indefinite and particular limits,<sup>13</sup> and the multifaceted limit experienced by the beholder, as highlighted in the representation of the limits above, discussed in relation to *L’Illa Diagonal* and *Jardins de Lina Òdena*. Thus, the representation of the limits is unlike the lived-experience of the limit. The representation is deliberate, selective, and tangible<sup>14</sup> while the lived-experience of the urban environment is quick, multiple and intangible. To draw takes time and many decisions are taken while drawing making it selective. On many occasions, the decisions are conscious but in other cases they are unconscious but lead by previous actions and/or thoughts based on reflective practice. On a drawing, the tangible outcomes that stay, the represented lines are as relevant as the missing ones. Thus, the representation is also selective in relation to what is missed to reveal what otherwise was concealed. On the contrary, the lived-experience is characterised by the saturation of the senses through all sorts of unpredictable stimuli felt simultaneously, and in sequence, over short periods of time. The individual does not select but “takes them in”. The lived-experience is the basis of this research while the drawing and written experiences and their representations are indispensable, which have revealed the concealed limit providing alternative modes of attainment or appearance.<sup>15</sup> The representations rarely oppose the lived-experiences but, a posteriori, explain parts of them.

In my experiences of drawing limits in relation to the case studies, architectural drawing conventions both enabled the representations and constrained them. Where necessary, I transgressed them. Most of the representations were diagrams, which were neither plans nor sections, but deliberately conceived as hybrids of existing representational conventions

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<sup>10</sup> This is part of the reflective practice introduced by Donald A Schön in his book, *The Reflective Practice. How Professionals Think in Action* (London, New York: Routledge, 2016) p.78-79.

<sup>11</sup> Gaston Bachelard, *The Poetics of Reverie* (Boston: Beacon Press, 1971), ‘Introduction’, p.6.

<sup>12</sup> Abstract lines reveal the “inner necessity” defined by Kandinsky as the lines that “life force animate(s) them and that, since it animates us too, allows us to join with them and experience their affects and pulsations from within.” in Tim Ingold, ‘Looking for Lines in Nature’, *Earthlines* vol.3 (2012), pp.48-51 (p.50).

<sup>13</sup> The indefinite and particular refers to the unlimited of Anaximander and Plato’s idea of the infinite and finite in things that informed the “ideas of things” of Aristotle.

<sup>14</sup> This also applies to the drawing-experience.

<sup>15</sup> Heidegger’s term.

necessary to describe limits. The conclusions of the exercise of representing limits in the case studies was complementary to the accounts of lived-experience I had provided earlier. There were some overlaps, and some differences, but rarely contradictions.

My experience of drawing also showed me that the line is a limit in the sense that it separates, defines an end or a beginning of something and yet is also part of this something. The line defined as limit in this way correlates with a narrow and literal definition of edge.<sup>16</sup> Hence, a priori, the use of lines seems counterproductive as it suggests that the limit is simple, clear and tangible. The line of the limit bears and generates,<sup>17</sup> is simple and complex, abstract and representational, singular and multiple. The limit reflects and contests, and all the lines of the limit at least bear in the sense that they contain meaning or relationships. The line generates by positioning other limit/s or other lines within itself and determines roles, or the nature of itself, or other lines. The kerb presented in *Jardins de Lina Òdena*, for example, acts as the limit between a level change for pedestrians, yet it was the limit of the footway and the carriageway, but also positioned the façade of the block. The lines of the limit are simple as a line, in itself, is simple. Yet, it is complex as each line has a different bearing and generating and this changes with changes of scale. The delineation of the block read as a perimeter, generating the street and public realm, and bearing the meaning of private realm and value attached to it. At a different scale, this was revealed as a border and a membrane with a less clear line generating a band. Thus, the line needs codifying to depict the similarity and sense of belonging of a line to “a” limit, as well as the uniqueness of the line in question. The line of the kerb delineates defining a sense of belonging for the user. The delineation of the block (line of the façade) also establishes, in a similar but more particular and stronger way, a sense of belonging to the people who live behind that line. Furthermore, it determines the behaviour to be adopted by the visitor who has been invited to enter.

The line of the limit is abstract as it encapsulates intangible qualities, yet it depicts a line that we see or perceive as a reality on the page. It is multiple, as the limit is constituted of several lines, and singular as each line is specific, positioned and has a role.<sup>18</sup> It is also multiple as most lines have a twin line on a different limit that shares some features or qualities. A simple case is the “there” and “over-there” defined by a single line in all situations and sharing the role. In the case

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<sup>16</sup> For Casey and Richard Sennett this is his overarching term instead of limit while I understand the edge in its narrow and literal geometric definition.

<sup>17</sup> Despite disagreeing with the term deployed by Casey; the edge I had explored the meaning of “bearing and generating” qualities of the edge. These bearing and generating seem close to the disclosure and revealing of the thing by Heidegger.

<sup>18</sup> Role relates to the reason and way of being of the line enclosed.

of the multifaceted limit with multiple lines, we can compare the façade of the block with the façade of *L'illa Diagonal* across their scales, taking diverse roles and the detailed study through lines and bands. The lines of the limit of the kerb is comparable with the limit of the sand-water of the *Torrent*. In many of the limits an imperfect symmetry with a hinge is identified, and each side contains the same amount of lines and the intensity between them varies between limits. This was identified in a significant number of representations of the limit, like the water-sand on the *Torrent* in the inlet, the study of the kerb or the limit of the façade on *L'illa Diagonal* to name a few. Most limits display some lines that are more visible than others and are represented with more intensity. These correlate with the lines that generate and bear.

The explorations through drawing encouraged me and enabled me to appreciate not just the experience of drawing limits but also the attributes of limits themselves – following the working definition above – and how they operate in the whole, as entities which do not exist in isolation.<sup>19</sup> The exploration represented and interpreted the limit, composed of bearing and generating lines, as an adoption and development of diverse meanings and roles, as studied from different locations, eyes or scales, disclosing the multifaceted conditions of the limits under scrutiny.<sup>20</sup> It displayed the double basic condition of the limit (in Trías' terms) as *limen* and *limes*, joining and separating, acknowledging the tensions between both these actions.<sup>21</sup> The representations revealed the limit in action in the world as a strip, with a thickness that may vary or fluctuate, establishing a temporal balance amidst tensions both within the space of the limit and from the outside to the limit.<sup>22</sup> The fundamental attribute of asymmetry – as the limit appears between things – became apparent, and in some cases (as accounted for above) multiple asymmetries were disclosed due to the limit being doubled.<sup>23</sup> The limit's ambiguity, both spatially and through time, was highlighted, depending from where it is inhabited, by whom, and how it is framed spatially. Thus, the representations of the limit were able to grasp at

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<sup>19</sup> The limit is recognisable as it is an entity and it is usually part of whole; a bigger entity. For example, *L'illa Diagonal* is a limit belonging to the superblock. The *Avinguda Diagonal* is a limit to *L'illa Diagonal* but also to the city and the urban fabrics this crosses and the superblock.

<sup>20</sup> Specifically, the urban case studies disclosed limits that were contested and reflective. This was the case of the linkage-entrances in *L'illa Diagonal* or the kerb in *Jardins de Lina* Òdena. The limit in exploration was determined or placed by other limits and the limit in exploration was affecting others.

<sup>21</sup> The linkage-entrances of *L'illa Diagonal* displayed their dichotomy as *limes* and *limen*, where at one moment these were more a linkage while a moment later they were experienced as an entrance separating whilst allowing some movement through. The façade also revealed this attribute, and the intensity of the *limes* and *limen* depended from where this was examined.

<sup>22</sup> None of the limits are static. We only need to change position and the limit changes. The study of the limit in the inner open space of the case study of *Jardins de Lina* Òdena revealed itself differently when this was explored from the eye of the visitor, instead of the eye of the inhabitant.

<sup>23</sup> All the limits studied presented asymmetry and in many cases an imperfect symmetry. This was the case of the edges of the *Torrent* in the inlet but also the study of the façade of the block at different scales



least some of the complex qualities of the limit, but rarely in just one drawing. On reflection, this need for multiple representations is arguably a reflection of the multiplicity of the experience of limits in the world. Limits thus revealed themselves through drawing as perimeters, borders, boundaries and rims at different scales.<sup>24</sup> These representations displayed the limit as a particular entity in one instance, revealing “borderiness” and perhaps “perimeteriness”, at a different scale, as well as “boundariness” and so on. On reflection, again, the intensity and degree of each attribute of a limit – and the relativity between them across scale and time – is what determines whether it is perimeter, border, boundary or rim at any given moment in the frame and the eye of the beholder. Defining the notion of the limit, and attempting to represent limits in drawing, have both contributed to conceptualising these operations of the limit, and an appreciation of its power in interpreting and defining place.

## Limitations of the Research

### Experience as Limit

I am physically bounded, and I can only experience from my body.<sup>25</sup> My inner life is dependent and based on my experience of the outer world. Thus, mind and body are embodied. In everyday life, I am not aware of my body, I do things, move around, go in and out of places, even when I visited the case studies, or was drawing the limits, I did not always consciously notice my mind working together with my body.<sup>26</sup>

Yet, body and mind define and limit my experiences in two ways: my body is individual and unique;<sup>27</sup> and my mind and body have been shaped by previous experiences, knowledge and beliefs. In the lived, written and drawn experiences deployed in this research, the body is the

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to name but a few.

<sup>24</sup> A clear case of this was the line delineating the block. This was disclosed as perimeter and later as a boundary and then as a border. Something similar happened with the limit delineating the inner open space of the block or the edge of the façade, revealed as edge, rim or boundary.

<sup>25</sup> Based on Emmanuel Kant, Heidegger, Maurice Merleau-Ponty and Trías. This also can be attributed to phenomenologist architect-historians like Peter Zumthor, Juhani Pallasmaa, Holl, Alberto Pérez-Gómez, David Leatherbarrow who believe experience takes place with the body and in-the-world.

<sup>26</sup> Merleau-Ponty ponders on this idea in his seminal book “Phenomenology of Perception” and Pallasmaa encapsulates this in the title of one of his most renowned books; “Thinking Hand”, 2009.

<sup>27</sup> Everybody is unique with unique proportions between the parts of the body, the hands, feet, legs have a specific size which are a reference of measurement, my eyes are at a height from where I see the world. Besides, body and mind continuously change and these are noticeable. When we are young we constantly grow changing height and even the proportions between the parts mutate. As we grow old our mobility or sight gets affected defining what and how we perceive though we constantly adapt without noticing it. The mind also changes as we acquire knowledge, specific skill,... Defining how to approach or look at things.

hinge between the world and the mind. The body is a limit<sup>28</sup> through which I experience and through which relationships with the external world are formed. Furthermore, experiences are also unique in the sense that they are determined by the particular external factors and agents<sup>29</sup> that cannot be repeated or recreated at another moment in time. Merleau-Ponty writes; “My point of view is for me not so much a limitation of my experience as a way I have of infiltrating into the world in its entirety”.<sup>30</sup> Heidegger, in a related but different way, believes that the presence of things is felt when we dwell, and that the “thing” is disclosed as we experience. The specific yet diverse viewpoints based on the three modes of experiences of the limits displayed the multiple limit. The lived-experience of the case studies through the multiple visits revealed the limits based on this mode of experience. The written and drawn-experiences allowed me to dwell on the limits over and over, manifesting themselves anew having had the opportunity to reveal their self-concealment and overcoming possible appearances.<sup>31</sup> The three modes of experiences manifested the limits themselves in varied ways but in a complementary and interrelated manner. The written and drawn-experiences are directly affected by the lived-experience and the written-experience has influenced the definition of the limit and thus, the drawn-experience. However, my research is limited by this double subjectivity (body-mind and uniqueness of each moment) and this is an inevitable constraint of the research.

In addition, my experience of the world encompasses the limitations of my body whilst being coloured by my architectural and cross-cultural background. My “default” representational experience of the world is through the line. I draw lines on paper and in my mind and I see via lines. The constraint is that this inquiry springs from my trained ability as an architect to see by way of lines. As an architect who has experience in designing, it comes naturally to me to engage with the delineation of drawing in a particular way, whereby the lines of the drawing “talk-back” and a conversation is established.<sup>32</sup> However, my training may restrict the ways I

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In the same way, the eyes provide unique visual frames, the mind provides the lenses through which to visualise the frame.

<sup>28</sup> For Trías, this is the bordering sieve: the hinge between the phenomenological and the transcendental, bridging the experiences and representations. Also see, Casey, *The World on the Edge*, pp. 211-212.

<sup>29</sup> The case studies are determined by factors and agents. The natural agents had a greater effect on the inlet and the socio-politic and cultural factors affected more the urban cases.

<sup>30</sup> Maurice Merleau-Ponty, *Phenomenology of Perception* (London & New York: Routledge Classics, 2002). First published in French in 1945; English first edition published 1962 by Routledge & Kegan Paul, translated by Colin Smith, p.384.

<sup>31</sup> Heidegger distinguishes between two types of experiences: readiness-at-hand and occurrentness. Furthermore, he believes that things not always show to us as they are, and these can manifest in different ways depending on the mode of access (This was presented in chapter 1.3. ‘Defining and Redefining the Limit’ and the section ‘Human Finitude in Heidegger’). Thus, the three modes of experiences are modes of access and these modes include the two types of experiences but in different degree.

<sup>32</sup> Schön, p.78-79.

am able to “listen” to the drawing, circumscribing my particular “reverie” in drawing, because my professional responses are already habituated. Drawing activates my instinct as “reflective practitioner” and this would not be experienced in the same way by a person with a different background, whose engagement may be unlike mine.

### Language as Limit

A review of urban design thinkers reveals the discrepancies between the terms assigned to the limit amongst different authors, since the English language offers an extensive list of similar and commonly used words. Language is part of our everyday life, encompassing human experience.<sup>33</sup> Therefore, the multiplicity of terms reflects the richness and relevance of the phenomenon of the limit in human experience.

Language is necessary, yet it is a limitation as “thought is possible only on the basis of language”.<sup>34</sup> Thought, thus, is limited to the words available to us.<sup>35</sup> Nonetheless, we have the capacity to create words when necessary and this happens within the practice of language.<sup>36</sup> Consequently, the diversity of languages counts for the diversity of cultures displaying discrepancies of available terms and meanings of the same term between languages. Hence, these are reflected in the preference of adopted terms by authors.

The terminology of the limit offers two limitations. Firstly, some of the terms related to the limit do not have correlative terms in other languages such as Spanish, German, French or Catalan.<sup>37</sup> Limits are thus spoken of slightly differently, and therefore thought of slightly differently in different cultures. My work here has stuck to English-language conceptions of limit, albeit informed by the translation of works by thinkers written in such languages. Secondly,

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<sup>33</sup> See Martin Heidegger on ‘On the Way to Language’ in *Basic Writings* (New York: First Harper Perennial Modern Thought Edition, 2008) pp.393-426 and also Dermot Moran, *Introduction to Phenomenology* (Abingdon, Oxon & New York: Routledge, 2000), p.269, based on Heidegger and Hans-Georg Gadamer.

<sup>34</sup> Heidegger, p.413 and Dermot, p.269.

<sup>35</sup> Gadamer in Moran, p.270.

<sup>36</sup> George Steiner, *After Babel. Aspects of Language and Translation* (New York, London: Oxford University Press, 1975); *Real Presences* (London: Faber and Faber Limited, 1989) and Edward T. Hall, *Hidden Dimension* (New York: Bantam Doubleday Dell Publishing Group Inc., 1990), p.91.

<sup>37</sup> Most of the literature has been accessed in English and Spanish, most of the information for the case studies is available in Spanish and/or Catalan. The reading of Heidegger in English has provided a reference for the correlation or lack of it between fundamental terms in German and English. Unfortunately, the work by Trías is only available in Spanish and it has not yet been translated into English, hence, in order to propose correlations of words between languages, I turned to the comparison between the Germanic-Romance languages.

In this research, etymology of terms and correlation of terms have been researched in English and Spanish and then contrasted with German due to the available literature on the subject and to a lesser extent in French and Catalan.

the selection of terminology has been limited by the terms deployed in philosophy due to the conceptual consideration of the terms.

### **Drawing as Limit**

Drawings representing the limit in this research are mainly diagrams drawn from lived-experience and photographs, maps, plans and sections. Evans discusses the gap between drawings and the object they represent. This research embraces this limitation, and celebrates the idea that drawing allows us to advance our thinking, understanding and interpretation through the act of drawing as a practice. It is thus accepted that drawing is capable of unveiling and communicating aspects that would not otherwise be reached through words alone.<sup>38</sup>

There is an added limitation that reading drawings requires a skill, which is not at hand to everybody. Empathy comes more easily with a written description when compared to a drawing, if you are not used to reading drawings. The description is specific but allows for memory to come into play, while the drawing is more abstract, requiring skill to decode it in order for memory and then empathy to occur. Thus, where appropriate, the drawings include architectural conventions of orientation, scale bars and/or a drawn human figure to facilitate an easier start to reading and engaging actively with the drawing. The explanations complementary to the drawings seek to assist the reader with engagement with the drawings. However, these, in some cases, have manifested self-concealed aspects of the limit not revealed previously as a result of the reflection of the drawing through writing.

### **Delineating the Limit in Urban Design Theory**

The definitions and explorations of the limit here extend and refine those proposed by the key urban design thinkers introduced in chapter 1.1 and, in this part of the conclusion, I seek to relocate the arguments of this thesis in the context of their work. Christopher Alexander, Jan Gehl, Quentin Stevens and Miloš Bobić believe in the primacy of the boundary in the inhabitation of the public realm and consider it as an entity per se, yet this study illustrates why and how these are prime in our experience of the built environment. In this research, the limit has been explored from the experience of the individual while the theorists within the urban-life group (Gehl, William Whyte, Jacobs) consider inhabitation by groups or individuals in general. Edges, boundaries, borders or interfaces between spaces are preferred locations for inhabitation

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<sup>38</sup> This is directly related to the idea of “drawing forth” discussed by Hill and Simon Unwin ‘Analysing Architecture Through Drawing’, *Building Research & Information*, 35:1 (2007), pp.101-110.

for their privileged location to see and be seen, feel protected and have wide visual access into two spaces or domains. Thus, the idea of limit these thinkers talk about coincides with the working definition presented here. It is inhabitable, placed in between things, in an advantaged location simultaneously acting as limes and limen. Quentin Stevens also presents particular situations where spaces are appropriated in relation to the limits as these offer a sense of control and security relevant to all cultures, noticing that people prefer soft limits. Soft limits translate into limits with multiple varied lines as a sign of being contested and reflective resulting from the negotiation between tensions that affect the limit, and this puts on the adjacent spaces or conditions. Alexander refers to the depth of the limit through the specific case of the “scallop edge” requiring a thickness to accommodate activities while here, this is a strip where the limit manifests itself displaying its attributes.

Gordon Cullen’s kinaesthetic approach, and his notions of “here” and “there” are fundamental to this research. The “here” and “there” have also been related to the proposition by Steven Holl, Juhani Pallasmaa and Alberto Pérez-Gómez<sup>39</sup> on the fusion of the foreground, middle ground and background in the perception and creation of space. In this study, the “here” and “there” are complemented with the “over there” (or the long view for Holl et. al.) structuring the view into three or four visual zones. The “over there” often refers to the urban horizon, contrasting with the geometric horizon and the horizon.<sup>40</sup> The views are snaps or fragments of my lived-experience and are located by my eyes. The “here” and “there” played a relevant role in the descriptions, and a line has been drawn to delineate the “here” from the “there”, and from the “over there”. These are single lines with no thickness that work as hinges separating and joining the realm, structuring the views and are interdependent.<sup>41</sup> These lines are re-located over and over as we move the position of our eyes or body. There is a moment when the line defining the “there” becomes the “here” manifesting the end of the here; an inhabitable strip, and the beginning of the “there”. Thus, the “heres”, “theres” and “over theres” are revealed as part of a smooth choreography displayed in space and time. Thus, the limit is multiple. There are types of limit instead of just one and a limit can be multifaceted, displaying in a diverse manner depending on the location and scale. The single line of the “there” becomes a multiple line to turn into the “here” and disagreeing with the line of the “there”. Therefore, the limit

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<sup>39</sup> Steven Holl, Juhani Pallasmaa, Alberto Pérez-Gómez, *The Question of Perception. Phenomenology of Architecture* (San Francisco: William Stout Publishers, 2006), p.45.

<sup>40</sup> The urban horizon usually is rim of buildings that frame and meet with the sky. The geometric horizon is the horizontal line holding the vanishing points of the perspective. The horizon is the one Heidegger relates to the boundary and it moves as we move; thus, it cannot be touched or reached.

<sup>41</sup> They are interdependent in the sense that there is no “here” with no “there” and no “over there” with no “there”. One line defines the end of the “here” but also the beginning of the other, the “there”.

is topological, changing depending on from where this is experienced, and this displays as entity and yet as part of the whole. This complex but coherent behaviour creates ambiguity, reaffirming that it is challenging and inappropriate to label the limits with names.

Bobić, in his investigation of the urban interface central to the concept of urbanity<sup>42</sup> focuses on the correlation with the transition between building and street resulting in an active triangulation between the boundary between realms and users. The spatial configuration of the interface must be able to cope with the constant tensions due to the condition of being in-between. It also should be able to initiate and develop healthy negotiations between users, displaying its attributes of contested-ness and reflective-ness. The visual field<sup>43</sup> for the visitor and resident of the inner open space of the *Jardins de Lina Òdena* were mapped, revealing their varied experiences of the limits defined by the negotiations (limit being contested and reflective) due to their position and personal interest. This mapping displays the directionality of the limit and the “membrane effect” identified by Jacobs, Alexander and Sennett. Nonetheless, limits are affected by their users as well as by external agents but also many others as Bobić pointed out. The inlet case study portrays this, where the external agents are numerous, with significant and unpredictable impacts. Thus, the limit can be conditioned but not designed<sup>44</sup> with a fully predictable outcome, due to the number of factors that have a role temporally and spatially. In line with Bobić’s interfaces, White presents the urban portals alongside paths and places as the major entities of the urban environment, based on the combined methodological approach of Cullen and Krier. Bobić’s interfaces are at the building scale, willing to be urban and part of this other scale through mediation, whereas White identifies them at the urban scale applying architectural tactics. The experiential limit and its representation have demanded that we consider the limit across a variety of scales, helping to reveal the central attribute of topology. Besides, the idea of a portal brings to light its liminal condition, framing and enabling us to look both outwards in directions due to its in-between location. This position is uncomfortable, yet advantageous.

Stevens categorises the thresholds and Bobić identifies five items to classify the morphology of the interface and seven types based on the depth of the spatial and visual territorial transition.

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<sup>42</sup> Miloš Bobić in *Between the Edges. Street-building Transition as Urbanity Interface* (The Netherlands: THOT Publishers, 2004), p.37 defines the concept of urbanity as the result of “complex relationships between economic potentials, juridical regulations, norms, social structure, cultural milieu and traditions, religion, geographical location and climate, spatial pattern and architecture of the city”. Definition was provided in 1.1.

<sup>43</sup> These are close to their territories. The territory includes all the limits that encircle the user even if she cannot see part of them as she has experienced them in other views and she is aware of them.

<sup>44</sup> Bobić, p.79

Classifications belong to the scientific world, however, while this research is positioned and framed within the phenomenological and design traditions. Therefore, it seems neither appropriate nor desirable to propose here a taxonomy of the limit, or indeed a list of terms and their definitions.

## The Limit as Philosophical Idea

To account for something as “limiting” can sound negative, associated with restriction or obstruction. Indeed, aspects and conditions “beyond the limit” are considered out of reach, ignored or disregarded. This is also the case in architecture and urban design where, for example, the red line delineating the site limits the scope of intervention and influence, or the line of the kerb limits the pavement as a free area for the pedestrian. That said, in academic language in the humanities and the social sciences, research is “limited” to ensure its originality, significance and rigour.

My conception of the limit was also broadly negative until my reading of Trías’ Philosophy of the Limit, in particular the passage about the frontier,<sup>45</sup> and Heidegger’s condition of the boundary presented in his seminal essay 'Building Dwelling Thinking'.<sup>46</sup> My attempts to account for limits in experience, and represent those experiences, based on the working definition of the limit drawn from Trías and other authors, reveals that the limit is never one thin line but is instead configured of multiple lines. The limit – as they conceive it, and as I have found in my investigations – is a space of potential. It is always double, always making space for something to happen. The limit is a space allowing for inhabitation, defining itself and becoming recognisable. But, more importantly, it is space for looking outwards, in more than one direction. In this characterisation, the limit – as an idea – remains outward looking, open to dialogue, and able to mediate between divergent surrounding conditions.

Thought of in this way, the limit is no longer negative, restricting or obstructing, defined by a line excluding and merely establishing the end of something. On the contrary, here, a productive and positive limit is proposed, manifesting itself beyond the binary condition of the “here” and “there” delineated by a single line. Instead, from its vantage point, looking both ways, the limit – as an idea – is able to reflect what it is beyond itself, and be contested openly by what is at each side. The notion of “limiting”, here, is potentially reversed into something positive. It taps into

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<sup>45</sup> Eugenio Trías Sagnier, *Lógica del Límite* (Provença, Barcelona: Ediciones Destino S.A., 1991), pp.15-18.

<sup>46</sup> Martin Heidegger, *Poetry, Language, Thought* (New York: Harper & Row, 1971; New York: Perennial Classics, 2001), pp.152.

the positive associations of the idea of “taking something to the limit” or pushing something to the fullest extent of what is possible.

The limit, understood in this way, offers design potential, particularly in urban design. This coheres in imagining the act of design as “limiting”, in this positive sense. When we design, when we imagine-particularly through drawing lines to delineate spaces- we should, perhaps, try to conceive more frequently of what we are doing as “limiting”. Most straightforwardly, this implies enjoying the opportunity for using lines to imagine the creation of rich, complex, multiple boundaries in space and place, which in turn offers the potential to heighten human experiences of the world. But “limiting” might also mean consciously invoking the limit more actively in our thinking. In this way, limiting is not just about a simple separation of “heres” and “theres”, but the conceptualisation of multiple, overlapping spaces in-between, which can be enlivening.

Indeed, there is the intriguing possibility to think more broadly of urban design, and maybe architecture too, in terms of processes of “limiting”. This approach agrees with “limiting” as a phenomenon entrenched in the everyday and our habitual practices. Things need to be “bounded” to be apprehended, just as things need to be named in order to be acknowledged. Trías argues that we dwell-in-the-world, but from the limit. He believes that, from the bordering siege, we have the unique position to look outwards and mediate the siege of appearance (world) and the hermeneutic siege (reason). Thus, this is considered as an idea, as a possibility of rethinking the processes of design. The limiting, which we are habituated to, could open-up new ways of imagining spaces, and indeed for conceptualising the act and outcomes of design.

Moreover, the idea of “limiting”, thought of in this sense, also seems to open-up a broader proposition for thinking about our experience of being-in-the-world, a kind of thought experiment. The double limit – as a space for looking both ways, for looking outwards rather than inwards, for mediating, multiplying and examining – offers a philosophical metaphor for ways of thinking about the world more broadly. Does the limit, thus conceived, ultimately represent the conceptual space of phenomenological thinking? As Trías proposes, is this expanded double limit the place out from which we contemplate our “free fall” in the world, as the world presents itself to us? The idea of “limiting” can thus perhaps be extended out from its experience and representation in architecture and urban design into a way of thinking about- no less - the philosophical potential of human experience.





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