Indeterminacy in process type classification

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Abstract

Clausal analysis within Systemic Functional Linguistics (SFL) is generally based upon a classification of the clause into one of six process types. Although this allocation is often portrayed as clear-cut, in practice process distinction can be unclear, and a single verb may meet the coding criteria of a number of categories. The aim of this paper is to examine the nature of indeterminacy within a transitive SFL analysis, by surveying experienced SFL users for their classification of 20 clauses. Our main findings are threefold: 1) inconsistency of analysis was very prevalent - we find only one of the critical clauses to be unanimously categorised for process type; 2) the main area of disagreement between analysts was the selection of Material vs. Verbal processes; 3) clauses with low consistency ratings appeared to include performative main verbs. These findings are discussed in the light of the semantic properties of performativity, which may contribute to the difficulty in process type identification; further, possible alleviations to these issues are discussed in order to allow for a full consideration of both the syntactic and semantic realisation of the clause, in situations where these streams of information may diverge.

Keywords: Systemic functional linguistics; Transitivity; Indeterminacy; Performativity

Introduction

In Systemic Functional Linguistics (SFL), every act of language is an act of meaning. For Halliday "the internal organisation of language is not arbitrary but embodies a positive reflection of the functions that language has evolved to serve in the life of social man" (1970/1976:26). This emphasis on meaning has been one of the most attractive features of SFL. As Butler (2009: 63–64) points out, SFL is truly a theory of language, not only grammar, since it strives "to account for how language enables human beings to communicate with one another in the ways they do".

SFL prioritises language use or function and offers a description of language that is multifunctional, including three main meta-functions: experiential,[1] interpersonal and textual. These meta-functions relate to specific strands of meaning in the clause, reflecting the requirement of language use to express experience, interpersonal relationships and text organisation respectively. All three strands operate simultaneously in the clause, and so any separation of the strands is artificial to an extent. However, the ability to focus an analysis in terms of a particular level of meaning allows for the production of information more specific to the issue under discussion – something unobtainable using previous approaches (Butler, 2003).

As each of the three meta-functions addresses a particular purpose of language, they include corresponding terminology to identify certain aspects. For example, the textual

meta-function is concerned with relevance and the creation of text and the main element of the clause is Theme, which is generally identified as the first element of the clause expressing experiential meaning. Whereas the interpersonal meta-function, in order to explore the expression of relationships within the clause, employs relatively conventional grammatical terms such as Subject and Complement as well as Finite and Predicator.

According to Halliday and Matthiessen (1999:1), the experiential meta-function in SFL terms is "concerned with the construal of human experience as a semantic system". SFL theory categorises experience in terms of process types, which forms the primary basis of analysis, whereby "each process type provides its own model or schema for construing a particular domain of experience as a figure of a particular kind" (Halliday and Matthiessen, 2004: 170). The method of analysing clauses for their process type relies on two strands of information: the semantic and the syntactic, and guides for identifying a given process rely on both simultaneously. This is modelled representationally by the transitivity system, which is "that part of grammar which constitutes a theory of 'goings-on'" (ibid.). Categorisation of the six processes types (Material, Mental, Relational, Verbal, Existential and Behavioural) is based upon the experiential structure of the clause (the syntax and semantics of the elements, specifically the process and participants). Crucially, this structure is fundamentally determined by the constraints imposed by the main lexical verb, and so it is this element that is primarily analysed in order to identify a particular process.

Semantically, experiential meaning and the assignment of processes offers a model of the speaker's experience and serves to represent this experience by construing "a quantum of change as a figure, or configuration of a process, participants involved in it and any attendant circumstances" (Halliday et al. 2014: 169).

Syntactically, these configurations are organised through the transitivity system, which as Halliday (1970/1976:159) notes is an extension of what is traditionally considered as transitivity:

> Transitivity is the representation in language of PROCESS, the PARTICIPANTS therein, and the CIRCUMSTANTIAL features associated with them. This is an extension of a narrower meaning whereby the form refers simply to the types of process, as in "transitive and intransitive verbs"; we shall use it in the wider sense, so that transitivity here refers to the "content", or factual-notional structure of the clause in its entirety. In other words, all those features of the clause which contribute to the linguistic representation of the speaker's experience come under this heading.

The semantic and syntactic criteria that distinguish between processes are detailed in Halliday's (1985) *Introduction to Functional Grammar* (see also Halliday and Matthiessen 2014, 4th edition). The different function that each of these processes serves is encoded in distinctive syntactic and semantic patterns, and the link between grammar and meaning allows for a kind of mutual predictability (cf. Wierzbicka, 1988). One important distinction relates to differences in what would traditionally be referred to as argument structure but in SFL terms concerns how participants relate to each other. For example, Material processes have an Actor participant that is inherent to the process, whereas a different participant, Senser, is inherent to Mental processes. As

Thompson (2004:86) explains, "from the experiential perspective, language comprises a set of resources for referring to entities in the world and the ways in which those entities act on or relate to each other". Therefore it is the configuration of the process and the inherent participants that construes the speaker's experience.

However, like with many categories, some instances incorporate features consistent with more than one category. Such borderline cases are likely to lead to some degree of difficulty for the analyst in assigning a categorisation. As Halliday and Matthiessen (1999:549) point out:

> the human condition is such that no singularly, determinate construction of experience would enable us to survive. We have to be able to see things in indeterminate ways: now this, now that, partly one thing, partly the other – the transitivity system is a paradigm example, and that lies at the core of the experiential component of grammar.

In this paper, we examine certain aspects of indeterminacy as a problem presented to the analyst. If we accept the assumption that indeterminacy is a feature of language and of the construal of experience in particular, then it follows that it is an area of language description (whether modelling the language theoretically or applying the theory analytically) that requires attention. It also follows that this aspect of language poses challenges to the analyst regardless of the approach taken. For example, it is known that there are different varieties of SFL (e.g. the Cardiff grammar, see Fawcett, 2000) and each one must address the nature of this indeterminacy. Indeterminacy in process type identification arises as a problem for SFL users, resulting in analytical ambiguity- an uncertainty as to which process is being realised. Any uncertainty in analysis is problematic since it leads to inconsistent interpretations from different analysts, unless a solution to this problem is incorporated in the analytical method. To date as far as we are aware, there is no standard approach in SFL to ensure the reliability and validity of the analysis such that multiple analysts would agree on the analysis with a high degree of consistency.[2] The potential for inconsistency is an issue for two main reasons: first, the resulting analysis may be realised differently, for example depending on the main analytical driver (e.g. whether semantic or syntactic criteria are prioritised); and second, if a process can be interpreted in more than one way, being constrained to a single classification may lead to an analytic interpretation that does not truly reflect the semiotics of the message, going against the primary objective of SFL.

The first issue, concerning what is driving the analysis, is perhaps a theoretical position; provided that analytical methodology is made clear, this should not pose any problems of consistency in results. In this instance, what is needed is more transparency and clarity in published SFL research about how indeterminacy (or the 'borderline' case) is handled. The second problem of interpretation, however, is more significant since it has the potential to undermine the research and the results based on such an analysis.

In this paper we address the complication of indeterminacy by identifying situations in which inconsistent analyses are most likely to occur. Although scarcely investigated

(cf. section 2), we argue here that the problems of indeterminacy faced by the analyst may be due to a divergence between the semantic and syntactic streams of information and, in this sense, due to an indeterminacy in the transitivity system (cf. Halliday's quote above). We examine carefully selected data in order to see whether inconsistencies amongst analysts systematically co-occur with certain linguistic variables. Furthermore, we discuss whether these variables are actually interesting and worth indicating in the analysis, whether a semantic 'distractor' will always be the favoured interpretation over syntactic structure and whether unpacking the analysis into the semantic and syntactic streams would provide a useful step forward. Understanding these aspects allows us to take a critical step towards offering the best possible alleviation to the problem of indeterminacy, allowing for movement towards a more standardised form of analysis. What we propose here will not only help our understanding of *why* indeterminacy may occur but also provide insight into the best methods for dealing with this issue.

Outline of the paper

In order to achieve these aims, we will first discuss the nature of indeterminacy in process type analysis in section 2. This discussion includes an introduction to the nature of the problem followed by consideration of what Halliday means by indeterminacy and how it relates to transitivity. We will also review what we can glean from other studies of process type ambiguity. This section motivates why we need an approach that considers the linguistic situations that lead to difficulties in classification. Following this, in section 3, we describe the data used in this study and outline our methodological approach. In section 4, where we present and discuss our results, we show how inconsistencies in process type analysis are not solely due to differences in coding styles or lack of understanding of the SFL approach. We examine the types of clauses that cause difficulties for the experienced SFL analyst, and explain how the indeterminacy of certain verbs, notably performative verbs, have divergent meanings represented in the clause. Finally in section 5 we will conclude by arguing that performative verbs are a strong catalyst for the divergence of grammatical and conceptual interpretations. We also propose an alternative method of process type analysis, which includes these divergent interpretations.

Views on process type indeterminacy

As suggested above, indeterminacy is not a problem for speakers; they manage to represent their experience very well. The problem concerns mostly theorists and users of the theory since an indeterminate nature can lead to inconsistencies in analysis and application, or indeed difficulties in clearly articulating the description. In other words, if we accept that there is indeterminacy in language, and SFL clearly does as noted above, then it is an issue for both the theory and the users of the theory. As an example of the difficulties the analyst can face, consider (1) to (3) below which have been taken from previous studies on process type analysis.

(1) They instruct people how to take binding directives (O'Donnell et al., 2009)
(2) Hopefully, if the doctor prescribes me more antibiotics tomorrow (Tucker, 2014)
(3) They would encourage the growing of problem hedges (clause 11 in appendix)

Each of these clauses has been identified in the respective studies as causing some degree of indeterminacy in the analysis; differences can seem subjective and the same entity may appear to function in more than one participant role as we also see below in examples (4) and (5). The participants are a significant aspect of transitivity (see below) but not the only aspect, and by the nature of the process type categories, we also find syntactic differences.

For example, in comparing the Mental clause (4) and the Relational clause (5) below, there are a number of distinctions that can be made on syntactic grounds, despite their similarity in meaning.

(4) Her colleagues fear her
(5) Her colleagues are afraid of her

While as Martin et al. (1997:121) point out, "both clause types construe emotion", there are differences. Mental clauses generally can be made passive as shown in (6).

(6) She is feared by her colleagues

In contrast, relational clauses such as (5) include an Attribute that is expressed by an adjective (e.g. *afraid*) and this adjective can be intensified by *very* as illustrated in example (7).

(7) Her colleagues are very afraid of her

However, more fundamental than this is the very nature of the two process types. It is important to recall here that in SFL transitivity is seen as a configuration of participants. Material and Mental processes have only one inherent participant: Actor and Senser respectively. As Halliday and Mathiessen (2004:213) explain,

> In 'relational' clauses, there are two parts to the 'being': something is said to 'be' something else. In other words, a relationship of being is set up between two separate entities. This means that in a 'relational' clause in English, there are always two inherent participants — two 'be-ers'.

Of course as seen above in (6), if a mental process is expressed in the passive voice, we might only note one participant but in these cases the participant is not represented as the Senser but rather as the Phenomenon. The role of the inherent participant in the clause configuration is often used as the conceptual drive alongside the more formal grammatical criteria to aid classification – and this is true regardless of the branch of SFL being employed. The main difference then in participant terms between Mental and Relational clauses is, according to Halliday and Mathiessen (2004:212–13), that while

> the Senser, is always endowed with consciousness, this is not the case with 'relational' clauses. If anything, the participants in 'relational' clauses are more like the Phenomenon of a 'mental' clause — not only things, but also acts and facts can be construed as participants in a 'relational' clause.

This difference is only one example of a distinction that can be made based upon syntactic differences in the clause structure. Each of the six processes is proposed to have its own idiosyncratic grammatical behaviour. However, the distinction between these processes is often not as clearly expressed as the above example, which can make it difficult for SFL analysts to allocate a verbal construction to a specific type of process. As we suggested above, the analysis of the main verb is crucial to the overall interpretation of the clause, as not only does it determine the type of process being dealt with, but also what participant roles are expected (cf Fawcett's Process Test described in Fontaine, 2012). Differences in process identification therefore entail a representation of a different reality, and a different construal of experience.

As stated above Halliday and Matthiessen (1999:549) take the position that indeterminacy is to be expected in language. They describe the nature of indeterminacy in terms of five main types.

- **Ambiguities** concern a word form with more than one distinct (exclusive) meaning; for example *must* which could express either obligation or probability and the addressee then has to adopt one meaning or the other.
- **Blends**, like ambiguities, involve one word form but where the different meanings have blended within the word form; for example *might* in some cases expresses both ability and probability.
- **Overlaps** involves cases where two categories overlap. These are borderline cases; for example some behavioural processes (such as *listen*) share features with material processes and other features with mental processes.
- **Neutralisations** include instances where the difference between two categories disappears as can happen for example with non-finite dependent clauses, as in *I get tired running*.
- **Complementarities** happen where "certain semantic features or domains are construed in two contradictory ways"; for example concerning agency as in *They'll dry,* where experience is construed in two ways - transitively and ergatively ("the children will dry [the dishes]" vs. "the dishes will dry [in the sun]).

Webster (2014) offers a useful discussion of indeterminacy in language and how SFL has developed to deal with it. As he explains, "[a] very different perspective is reflected in descriptions of language as a social-semiotic system, which focus on its role in defining human experience, and enacting the social relations essential to our shared sense of humanity". This perspective allows us to accept "irregularity and asymmetry in language" as inherent to the language system. In this paper, we are interested in the effect of indeterminacy in the transitivity system. Although the problem of the difficulty in process type selection is not particularly prevalent in the literature, there has been some acknowledgement of this issue and some discussion relative to its cause and solution. Fawcett (2009:212–220) suggests that one source of this difficulty is due to ambiguities, i.e. when verbs have an ambiguous form and can realise a number of different processes depending upon the textual environment. For example, the verb *got* can realise 1) a Relational process by assigning an attribute: *Ivy got worried,* or a possession *Ivy got a new climbing rope*; 2) Material as in the directional *Ivy got to the shop in time* or the influential *Ivy got him to eat it.*

Other sources of verb ambiguity also arise in the presence of grammatical metaphor, whereby a verb that most frequently realises one process instead refers to a different process. For example, the verb *touched* is most likely to refer to a Material process, but it can also realise a Mental process when evoking metaphor. Fawcett (2009:214) offers the following comparison: *Ivy touched Fred [with a stick]* (Material) or *Ivy touched Fred [with her words]* (Mental). The analyst has to be particularly vigilant in order to avoid incorrect classification and ensure that tests to distinguish processes are being carefully employed.

A further issue is that a single verb may meet the criteria of more than one category. O'Donnell et al. (2009) identified some areas of the problem, as we will see below. Tucker (2014:402) suggests that part of the problem is due to the fact that criteria for category membership "tend to be based on prototypical cases". One possibility proposed by Tucker (2014:403) is that "because the core of the clause in terms of transitivity is lexical, responses to classification may be influenced strongly by semantic or conceptual considerations". The nature of this classification is taken up in this paper.

Although such cases exist where special attention needs to be paid to the syntactic tests of classification, one would not be faulted for believing that there is a 'correct' answer even if it is clouded by semantic distractions. When putting this classification to real-world practice, the indeterminacy of process type selection appears to be very real. O'Donnell et al. (2009) explored this issue by conducting an online categorisation of clauses for their process types. They asked SFL-trained linguists to take part, and selected clauses that had been previously identified by the two main SFL forums[3] (Sysfling and Sysfunc) as difficult to classify. The findings showed that individuals frequently selected different process types for the same clause, showing high inconsistency in analysis. However, according to the authors, this inconsistency is due to the existence of SFL users who employ different coding practices, leading to variant interpretations. They suggest that a 'model one' approach relies most strictly on the syntactic realisation of the clause, whereas 'model two' places greater emphasis on conceptual criteria. In the most extreme case, analysts who adopt 'model one' would ignore the semiotics of the message and categorise solely on grammatical structure; 'model two' members would disregard syntax and simply aim to convey the meaning of the message through the process type selection. It is worth mentioning that these models of analysis do not correspond to separate branches of SFL (e.g., "Sydney Grammar", "Cardiff Grammar"), but concern an individual's analytical preference. Indeed, these models apply regardless of the SFL sub-branch of the analyst, as all theories of SFL depend upon semantic and syntactic strands of information that are equally likely to be challenged by indeterminacy and are consequently susceptible to inconsistencies of analysis. As such, in employing these different approaches to classification it seems only inevitable that there would be differences in the coding results. Although, this suggests that conflicting interpretations would only arise when a classification based upon formal grammatical structure would reach different conclusions from conceptual classification. If this is the case then the indeterminacy here is not due to the nature of language but rather to the training or the preferred approach of the analyst.

With this focus on the analysts and not the verbs themselves, however, it is unclear what particular lexical environments may lead to these observed ambiguities in classification. Fawcett (2009) reviews the results of O'Donnell et al. (2009) and suggests that

the issue is caused by too great a reliance upon conceptual criteria. He highlights that the processes do not have a one-to-one relationship with conceptual realisation and real word physicalities; any process may realise any concept in the right circumstances (Fawcett, 2009: 214). The consequence of this according to Fawcett (2009:215) is that "in analyzing Process types and PRs [Participant Roles], it doesn't help to use the realm of experience as a guide". From this we can see that it is not a reliable analysis strategy to select a process based upon the conceptual realisation of the clause alone, as there is not a direct relationship between these two elements.

From this perspective, all of those in 'model two' are considered to be overlooking formal grammar in favour of conceptual meaning. However, this is based upon the assumption that syntactic distinction is always present and strong enough to form a process distinction, which is not always the case and it will not be the case when indeterminacy is at play in the transitivity system. Thus, in the absence of a definitive syntax, especially where there is an overlapping type of indeterminacy, individuals are forced to rely purely on a conceptual interpretation in order to aid their decision. Without a direct relationship between concept and process it becomes difficult to feel confident that a particular clause will be analysed reasonably consistently by most if not all members of the SFL analytical community.

Ambiguities are most likely to arise between subsidiary processes. The wealth of criteria provided to differentiate the primary processes (Mental, Material and Relational) is not matched in the classification of the subsidiary processes (Verbal, Behavioural, Existential), as they are seen as intermittent categories that encompass the meaning of numerous principal processes (Halliday, 1994:138, Thompson, 1996). For example, Verbal processes are able to project a clause that expresses a proposition or a proposal, which is also a feature of Mental processes, as in *He said that she likes him* (Verbal) vs. *He knows that she likes him* (Mental). Consequently, the semantic distinctions such as not requiring a conscious participant and describing a symbolic exchange need to be drawn upon to complete the analysis. Similarly, Behavioural processes are particularly troublesome to classify as they rely solely on semantic tests since they do not encode unique grammatical criteria in their identification, i.e. they cannot be distinguished from Material processes. This is recognised by Halliday, who suggests they realise "physiological and psychological behaviour" (Halliday 1994:139), but are not a distinct category on their own; instead realising a continuum between Mental and Material processes (ibid:141). These difficulties in identifying subsidiary processes are further hindered by the lack of consistent classification criteria across SFL guidelines, therefore making it difficult to pin down a definitive definition. When this is coupled with the indeterminate nature of transitivity in English, it is clear that the analyst faces a considerable challenge.

This position leaves us with a number of quite substantial problems. The evidence presented by Fawcett (2009) and O'Donnell et al. (2009) suggests that semantic information is a kind of subjective distractor from an otherwise accurate analysis. A simple solution might be that we simply prioritise syntactic criteria in order to achieve a level of consistency across SFL users. However, in situations where the grammar is unable to distinguish processes alone, achieving a standardised method of analysis capable of supporting consistency and agreement among analysts becomes very difficult. This is particularly true given that the majority of the literature surrounding SFL theory largely

avoids the issue of difficult analysis, instead focusing on "prototypical" examples of process types (Eggins, 1994; Thompson, 1996; Bloor and Bloor, 2004, an exception perhaps is Martin et al. 1997 which offers strategies for some borderline cases). Secondly, if we would reach different conclusions when basing interpretation on the grammatical information as compared to conceptual information, it is unclear which the "correct" reading would be. This leaves us wondering whether it is right to ignore semantic information if such an interpretation would offer a more accurate representation of the clause; a curious dilemma for functional linguists but one we hope to resolve at least partially in this paper.

Methodology

In order to address the questions raised by this problematic area, we conducted a short 20-clause process type classification survey to determine the consistency of analysis among SFL-trained linguists. Using the classification data we calculated a degree of consistency in process type selection for each clause and investigated relationships with linguistic variables that may have contributed to low consistency scores. In this section we outline how we did this.

Materials

The selection of clauses began with selecting verbs that did not obviously realise a single process type. Our starting point was to use five verbs identified as problematic in O'Donnell et al. (2009). In addition, 15 other verbs were selected based on past experience in transitivity analysis. Using the WordSketch tool available from the SketchEngine[4] (Kilgarriff et al., 1997) corpus query system, twenty clauses were selected from the EnTenTen web corpus by querying each of the 20 verbs in turn. The criteria for clause selection was as follows: the clause included only one verb that could be interpreted as the main verb and the clause was transitive (i.e., could take a direct object). The list of clauses used in the survey can be found in the appendix.

An online form was created and hosted using Google's Spreadsheets.[5] In the first section of the survey, participants were asked to self identify their degree of experience with SFL analysis. We did not ask participants to associate themselves with any particular sub-branch of SFL analysis. Each of the subsequent four pages contained five clauses to be analysed for a total of 20 clauses as stated above. For each clause, participants were asked to identify the process type realised by the clause by selecting one of the following six process type options: Material, Verbal, Mental, Behavioural, Relational and Existential. Participants were required to answer all questions, and there was an optional comment section where additional information could be provided. The comment box invited individuals to discuss the clauses that they found particularly difficult to analyse. The form took fifteen minutes on average to complete.

Participants

Participants were recruited through the online Systemic Functional Linguistics forums Sysfling and Sysfunc (see above). Participation was voluntary, and there was no compensation for taking part. Of those who completed the survey, only those who self identified as advanced users of SFL were included in the current study. The gloss for being

an advanced user of SFL was given as those who were either conducting research and/ or teaching using this approach. A total of 28 participants identified themselves as advanced users of SFL.

Consistency measure

In order to assess the level of difficulty individuals found in analysing clauses for their process type, we calculated a level of "consistency" agreement among participants. This value was computed for each clause of the survey as shown in Equation 1, where a:f refer to each of the six processes in order of highest process selections, and n is the number of total responses. The resulting statistic represented a consistency percentage score.

Equation 1. Calculation of the Consistency Score (C)

$$C = \left(\frac{\sum 1(a)x0.5(b)x0.25(c)x0.125(d)x0.0625(e)x0.03125(f)}{n} \right) x100$$

This calculation weights responses in order to index differing degrees of consistency: the higher the score (i.e., the closer to 100%) the more participants agreed on a single process type, displaying greater consistency. If there was a lot of variation in participants' categorisation, this is reflected by a lower consistency score (i.e., closer to 0%). While this measure has not been designed with the same intentions as measures of inter-coder reliability, there are similarities. As Neuendorf (2002: 45) points out, in terms of inter-coder reliability, "coefficients of .90 or greater are nearly always acceptable". Therefore, we might safely assume that any analysis that demonstrates considerable lack of consistency or inter-coder reliability should be critically examined to identify the causes. This is precisely our intention in this paper.

Results and discussion

We will begin with an overview of the consistency of the analysis for each clause. Results across all twenty clauses are displayed in Fig. 1, where the consistency among the 28 participants is given for each clause.

The results show that only one clause reached 100% agreement on a single process type and remaining clauses showed a great degree of variance in their consistency. Only

Fig. 1 Consistency scores for all 20 clauses
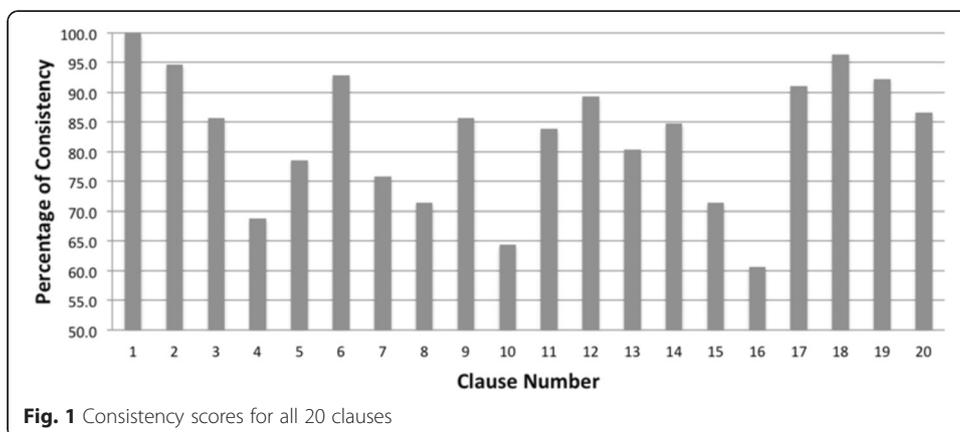
six of the 20 clauses (30%) showed a consistency score of 90% or above. This supports the finding of O'Donnell et al.'s (2009) study that even for highly experienced SFL linguists an agreement on the realised process type is not guaranteed.

On the level of individual clauses it can be seen that some were analysed with much greater consistency than others, suggesting that certain verbs were more difficult to classify. A subset of clauses with low consistency values is displayed in Table 1.

The first thing to be noted in Table 1 is that the three clauses identified with the least consistency all most predominantly straddle the Verbal and Material processes. In each of these cases the split is somewhat even across the two classifications suggesting that both were strong contenders for a 'correct' answer. The trend of Verbal/Material competition was observed across the majority of inconsistently analysed items, with 7 out of the 10 clauses identified with less than 85% accuracy having the highest identification for these two processes.

The two clauses with mid-range consistency were included in Table 1 for comparison, as they did not follow the same pattern of bordering Verbal and Material processes. Similarly, the three most consistently analysed clauses (excluding the clause with 100% consistency) included a mix of different categorisations and did not follow an identifiable trend. However, as a factor of having high consistency the secondary selection is a much weaker competitor and therefore it is difficult to draw interpretations about their inclusion.

It is interesting that inconsistencies occur between Verbal and Material processes, given that they have distinctive syntactic characteristics separating them (Martin et al., 1997:118). One criterion of Verbal processes is the ability to project a relative clause, and although none of the clauses realise a projection, they all have the potential to do so. For example, the most inconsistent clause, *Connors also rejected [that there was] a proposal by the Bishops conference,* can be realised with this projection, but was still identified as a Material process with equal confidence. The clause that was most frequently classified as Material process takes a very marked clause projection: *They would encourage [that hedges are grown],* perhaps explaining the move away from a Verbal process. The final clause: *Google does not guarantee [that these pages will be placed],* clearly has the potential for projection, again suggesting why the Verbal clause would be selected with the most strength. However, the presence of both Material and Verbal selections suggests that the construal of a Material "physical" concept may be

Table 1 Seven clauses identified with variant consistency

C score	Competing Processes	Split	Clause
60.7	Verbal/Material	11–11	Connors also rejected a proposal by the Bishop's conference
64.3	Material/Verbal	12–8	They would encourage the growing of problem hedges
68.3	Verbal/Material	15–6	Google does not guarantee placement within these pages
71.4	Material/Relational	16–8	Three priests stood on the platform in front of them
78.6	Verbal/Mental	18–8	Alan agreed with conferees on the need for better communication
92.9	Material/Verbal	25–2	Rebel groups resumed the peace talks within two months
94.6	Mental/Behavioural	25–3	I heard the singing at the start of the game
96.4	Material/Relational	26–2	The council elected a judge for each district

C = Percentage of "Consistency"; Split = number of responses to the two strongest identified processes

influencing the interpretation of the verbal exchange that the syntax supports, in line with the discussions offered by O'Donnell et al. (2009) and Fawcett (2009).

Interestingly, this split between processes was also apparent in the comments made by participants. Participant comments for REJECT are given in (8) to (10), suggesting a conscious reflection of the conflict between semantic and syntactic interpretations.

(8) "Reject" is similar in some ways to "agreed", but on the material/verbal borderline. There are several verbs which encode the transmission of information not necessarily through language by gesture, action, etc. I code these as non-prototypical verbal processes.

(9) Proposals are linguistic in form; rejection can only be done by saying (or writing) "no".

(10) I chose material as it seems "reject" requires action that subsumes any verbal element.

Based on these comments, it seems the analysts were aware that the verb they were dealing with did not neatly fit into one category over another, and were aware of the presence of both of these possible interpretations. Similar reflections were also offered for the other two inconsistently analysed verbs, GUARANTEE and CONFIRM, as shown in (11) and (12). Here we also find a conscious difficulty in choosing between the two options.

(11) Not particularly convinced about verbal for "guarantee", though it is a speech act process and can be followed by a clause complement, so that seems reasonable evidence.

(12) It seems "guarantee", like "confirm", is something done in speech or writing - it's an act of promising, and might not be honoured.

This self-reflection is important evidence as it shows that the observed inconsistencies are not due to mistakes or misunderstanding. It instead points towards a situation whereby the analysis tools available were insufficient for the analyst to reflect the reality of the function and conceptual space that the clause was denoting. Given that the difficulties consistently arose between Material and Verbal classification, it suggests that there may be a similarity in these items to cause the same pattern of uncertainty. A notable trend in all of the above comments for these three clauses is the idea of "doing something through language"; providing an exchange of information that simultaneously completes an action.

In linguistic theory, doing something with language may be referred to as "performativity" (Searle, 1975), and draws upon Austin's (1962) work on the notion of Speech Acts (something that was identified in the comment given in example (11) above). And indeed, each of the three verbs REJECT, ENCOURAGE and GUARANTEE are included in Searle's (1975) direct semantic analysis of English performative verbs. Traugott and Dasher (2001:190) state that "linguistic conditions for explicit performative use are (typically) first person present tense, indicative, active. However, some institutional speech acts, for example acts of Parliament, Supreme Court rulings, etc., may be plural, even third person, and passive". Although, having considered the historical

development of performative verbs, they argue that these verbs developed through metaphorical meaning shift; "verbs with speech act meanings are typically derived from with non-speech act meanings" (Traugott and Dasher, 2001:195). It would not be unreasonable to assume that some residual semantic trace of both the congruent event meaning and the metaphorical performative meaning could be activated at the same time, irrespective of whether the clause was used as an explicit performative act, which would contribute to the indeterminacy of process type classification.

Both of these theories build on the assumption that language has three layers of meaning: linguistic form (*locution*), the intended meaning (*illocution)* and the effect upon the hearer (*perlocution)*. These layers have an obvious interconnection, but depending upon context the same physical form of language may realise different functions and have a level of distinction (Hannay and Bolkestein, 1998). This variable function may therefore be a reasonable explanation as to why these items would be difficult to separate between Material and Verbal processes.

If we take the three verbs from above, REJECT, ENCOURAGE and GUARANTEE, all have different consequences depending upon the speaker-hearer relationship. This may be understood in terms of a lower- and upper-level function provisional to the realisation of context. As performatives, each of these verbs subsumes Verbal process, as all denote situations by which an exchange of meaning is inherent – be it through verbal or non-verbal gesture. This may be referred to as the lower-level function, as it is stable across all instances of use.

Although the Verbal process is always present amongst these verbs, it is arguably not the intention of such utterances. The importance of a guarantee, for example, is not within the words themselves but to the 'bind' formed as a *consequence* of the utterance. The same is true for a rejection and encouragement, where the intention and effect for interlocutors is the result of this exchange, which can only be realised in the presence of certain contextual circumstances, or "felicitous conditions" (Austin, 1962).

If the more stable of these interpretations is in the lower-level Verbal process, it is understandable that the grammar would favour this interpretation. However, when allocating participant roles to the argument structure it cannot be ignored that the Material process appears to more accurately represent the semantics of the clause. The examples (13) and (14) below display glosses for each of the two boarder-line interpretations – examples a give the original clause; b gives the Verbal gloss; and c gives the Material gloss.

(13a) Connors also rejected a proposal
(13b) *Connors also said that the proposal was bad*
(13c) *Connors also turned down a proposal*
(14a) They would encourage the growing
(14b) *They said encouraging words about the growing*
(14c) *They would aid the growing*

From this we can see that if the strict syntactic rules were followed and the Verbal classification was selected for each of these performative verbs, this would necessarily affect the interpretation of the entire clause. Each subject would be portrayed a Sayer, and the object simply as a message to be exchanged (Verbiage). Conceptually, this

appears to be a mis-interpretation, as the definition of a performative involves an individual (subject) using words to *change* (process) the state of the world (object), whereby this act of changing is what makes performative verbs so interesting. From this perspective, a Material process appears to offer a much more accurate portrayal of the relations within the clause. The entity being rejected, encouraged or guaranteed is the "target" of that process, not the discussion of a topic as a Verbal lower-level classification would entail.

In her corpus-based study of process types, Neale (2002:270) recognised that "there are social domains within which an authorised person may "bring about" a happening through language that is referred to by a verb sense". This relates to what we are arguing for here, i.e., there are clauses which have a verbal sense that are used to make something happen. Neale's process type database[6] is the largest (perhaps the only) database on process type classification and as such is a very useful resource. We checked her database for the three verbs under discussion here (REJECT, ENCOURAGE and GUARANTEE) and while GUARANTEE was not found in the database, Neale (2002) analysed REJECT and ENCOURAGE as follows. REJECT is considered a mix of Material and Mental processes with the inherent participant encoded as Agent and the second participant as Affected (cf. Actor and Goal in Halliday and Mattiessen, 2004) but the participant roles show a priority given to the Material process. ENCOURAGE was unresolved in the database and two proposals were given for the inherent participant, either Agent or possibly Carrier, which again suggests the Material process is given priority.

Finding such an even split in individuals' selections between the Material and Verbal processes here is fully in line with O'Donnell et al.'s (2009) conclusion that there tends to be two types of analysts: those who would prioritise semantic criteria (who, in this case would select Material) and those who would rely on syntactic information (in this case picking Verbal). As inter-coder strategy was not the focus of our study, we did not assess whether our group was made of consistently semantic interpreters and syntactic interpreters; however, this result does support a split between the two approaches to clausal analysis.

It was not always the case that a split between processes was clearly distinct between a semantic and syntactic reading. A different situation is apparent when comparing the two possible interpretations of the mid-consistent clauses, which did not border Verbal and Material processes. In the examples below, we see the clauses that were ambiguous between Verbal (gloss 15b) and Mental (gloss 15c), and those between Material (gloss 16b) and Relational (gloss 16c).

(15a) Alan agreed on the need for better communication
(15b) *Alan said that better communication was needed*
(15c) *Alan thought that better communication was needed*
(16a) Three priests stood on the platform
(16b) *Three priests take stance on the platform*
(16c) *Three priests are on the platform*

Here, both classifications appear to be equally valid. In example (15), it is unclear from the context whether the process of agreeing was something processed verbally or

only cognitively for example, and so either interpretation would offer a representative analysis of the clause. Example (16) is somewhat different, as it may rely upon the emphasis placed on the main verb: if STAND is being used in opposition to SIT or LIE, then this would be conveying a Material process (e.g., *Were the priests lying on the platform? No, they stood on the platform*). Whereas a relational interpretation can be primed (or coerced) if the question relates to their existence more generally, where the main verb can be replaced by BE (e.g., *Were the priests at home? No, they stood on the platform*).

In other words, the ambiguity is due to the lack of disambiguating context rather than due to the nature of the main verb per se. This is strikingly different from the Verbal/Material clauses in examples 13 and 14 given above, as the lower-level Verbal process appeared to display a clear mis-interpretation. Here, both of the classifications offer accurate upper-level readings of the clause, perhaps due to the fact that there is no simultaneous realisation of the two interpretations owed to performativity.

This lower- and upper-level meaning poses a problem for SFL analysis and brings us back to the original question of whether to focus on formal syntactic classification or the more subjective conceptual interpretation. Crucially though, these examples of ambiguous processes are very different to those offered by Fawcett, as it is not the case that there is a "correct" interpretation which is hidden by semantic distractors. Instead, there is no clear interpretation available which is able to agree with syntax and also provide a representative analysis. In these instances, where the structural and conceptual interpretation would normally be aligned, we see a conflict that appears to be causing the difficulty in classification. Consequently, and as we have seen, this leads to trained SFL linguists reaching different conclusions based upon the same information, suggesting that there are certain circumstances of dual meaning where two processes are realised simultaneously and simply cannot be separated. It may be worth reminding ourselves of what Halliday and Matthiessen (1999:549) say about indeterminacy, repeated here from the quote above: "no singularly, determinate construction of experience would enable us to survive. We have to be able to see things in indeterminate ways".

We might ask whether it helps to consider the issues discussed in this paper by seeing things in indeterminate ways. If we do, then one option would be to conduct both a semantic and a syntactic categorisation of process type, similar to the gloss examples given above. The first advantage to this approach is that an analyst is not forced to make a compromised decision by prioritising either syntactic or conceptual interpretation in cases where there is a tension between the two. Instead there would be space for all relevant information to be included in the analysis, thus maintaining the semiotic relationship between form and meaning. Secondly, the issue raised by O'Donnell et al. (2009) of different coding strategies would be eradicated as both model one and model two interpretations would be included in a single analysis. This means that consistency across SFL analysts would be attainable regardless of the analytical approach adopted. Finally, these situations of difficult (indeterminate) processes are the minority case; the majority of clauses will not present a difficulty to the analyst. It is only due to the specific selection of clauses in the current investigation that such high inter-subject agreement arose. If a speaker is choosing to use performative verbs or another lexical resource that could lead to dual process interpretation, this is a marked case and should

be at least noted in the analysis, as moments in which syntactic and semantic streams diverge may in themselves be of linguistic importance. If basing the interpretation on a single level, there is an entire dimension being lost with neither record of additional possibilities nor reflection that this identification could be different to any other of the same process type.

This is not the first proposal to segregate semantic and syntactic classification. In other functional approaches, this preference for a single classification is not held in the same way. Functional Grammar, which is designed to be able to deal with direct and indirect speech acts, has developed a multilayered model of the clause, containing no less than five levels in its structure (Dik, 1989; Hengeveld, 1988, 1989). Although there have been modifications to this theory, this has predominantly been in the realm of alternative interpretations of formulae and models rather than the simplification or reduction of levels (Cuvalay, 1995; Hannay and Bolkestein, 1998). This suggests that other theories with comparable provocation have forgone simplicity in order to deal with pragmatic-dependent meanings such as speech acts and performativity. Perhaps this is a move in the right direction for SFL if it is to maintain accuracy of experiential representation but of course this would have to be explored in future research.

Conclusion

The aim of the present study was to investigate indeterminacy in process type identification and to determine which linguistic instances are more likely to lead to inconsistent classification across SFL-trained linguists. In doing so, we have offered a proposal to address the problems associated with indeterminacy in transitivity analysis. In coding the responses to an online classification survey of 20 clauses, we found that only one clause was classified with 100% agreement among participants. This has illustrated the extent of difficulty and inconsistency in the analysis of less typical examples of the process types. Furthermore, we identified two situations that appeared to contribute to a significant lack of consistency in classification. First, there were instances where there was insufficient information to distinguish between two equally valid interpretations, both on the semantic and the syntactic dimensions of discrimination. This finding suggests that analysis should not be achieved by treating each clause as an island of information but rather by taking the clause as part of the larger discourse.

Second, and what has been the main focus of our discussion, were situations where the semantic and syntactic readings of the clauses were in divergence and opinions were split on which of two processes should be selected. This kind of situation was overwhelmingly driven by ambiguity between a Verbal and Material reading of the clause; features of more than one process type were identifiable. We found evidence to suggest that performative verbs were a catalyst for the divergence of grammatical and conceptual interpretations, whereby the lower-level Verbal process matches the grammar but the upper-level Material process more accurately represents the meaning. One main issue appears to arise from this duality of performative processes; namely, the analyst is forced to make a decision to favour either the formal grammatical or subjective semantic interpretation, essentially dismissing half of the information inherent within the clause. While these results do not allow for any firm conclusions about the

relationship between performativity and indeterminacy, it provides evidence that performative verbs can express at least one type of indeterminacy. Further research is needed in order to provide a more representative view of how the issue manifests in English. Previous work discussing the issue of difficult clauses has advised to follow the more stable syntactic interpretation. However, as we have seen, this often mis-analyses the function of the clause, which is arguably the purpose of conducting the analysis in the first place.

Although the motivation for a single-level analysis of experiential meaning is desirable, it does not appear that a one-dimensional classification is always sufficient to account for both syntactic and semantic realisation. If a representative analysis is to be maintained within the SFL framework, it appears that a more delicate analysis of the experiential meta-function is required, in order to provide the individual with all the relevant tools to conduct a fully representative analysis. Specifically the option to annotate syntactic and semantic interpretations separately would alleviate problems associated with the lack of correspondence between these levels. While it is true that a syntactic analysis is likely to allow for the greatest level of consistency across coders, having the option to also code the conceptual reading enables the continual upkeep of semiotic representation. Given that for the majority of cases there is no issue or difficulty in process classification, it would only be necessary to include this additional layer of information in the presence of performativity or other context-dependent interpretations, which may not have been identified by the current investigation. This would mean that the majority of analyses would remain the same, it is only when the two levels of the process diverge (i.e. do not agree) that there is an additional annotation, allowing for both interpretations to be transparent, and to further flag the presence of a marked dual meaning.

Endnotes

[1]Normally the three meta-functions are given as ideational, interpersonal and textual, where the ideational meta-function is composed of the experiential and logical meta-functions. Most often the ideational is equated with the experiential meta-function and the logical function is left out as a main function of language. As the logical is not relevant for the purposes of this paper, only the experiential meta-function is listed here.

[2]Some work has been done in the Cardiff grammar to establish a standard set of criteria for systematic analysis (e.g. tests for participant roles) but this has not yet been published in full; however see Fontaine 2012 for an indication.

[3]The two forums are: Sysfling, the discussion list for the International Systemic Functional Linguistics Association (ISFLA) and Sysfunc which is an Australian based discussion forum. For information on the Sysfling discussion list, visit https://mailman.cf.ac.uk/mailman/listinfo/sysfling and for the Sysfunc discussion list, visit http://listserv.uts.edu.au/mailman/listinfo/sys-func

[4]http://www.sketchengine.co.uk/

[5]https://www.google.co.uk/sheets/about/

[6]It should be noted that Neale's database uses the approach to functional grammar developed in the Cardiff Grammar (e.g. Fawcett, 2010), a comparable approach

to Halliday's which is sometimes referred to as the Sydney Grammar. There are many similarities but some differences, see for example Shulz (in press).

Appendix

List of clauses uses in the rating task.

1) Soldiers later confirmed the kill
2) The votes were counted in the lower house
3) I heard the singing at the start of the game
4) Older fans had endured beatings by the Secret Police
5) Google does not guarantee placement within these pages
6) Alan agreed with conferees on the need for better communication
7) Rebel groups resumed the peace talks within two months
8) The parents of the girl forbade her from playing with the boy
9) Three priests stood on the platform in front of them
10) No disguises can conceal our intentions
11) They would encourage the growing of problem hedges
12) It drew some criticism from potential buyers
13) I notified the obligor that a warrant had been issued
14) He was greeted by cheers and applause
15) Ovendun invited participants to consider what steps could be taken
16) Will he answer the wake-up call?
17) Connors also rejected a proposal by the Bishop's conference
18) Jennifer could pursue her Olympic dreams
19) The council elected a judge for each district
20) Hubert instructed us not to go beyond the reef

Abbreviations
SFL: Systemic functional linguistics.

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