

**‘Do you get it?’ An investigation into the different
types of ambiguity English-speaking children (aged 6-
11) are able to comprehend in verbal riddles**

Giulia Baker

Thesis submitted in partial fulfilment of the degree of

Doctor of Philosophy

Centre for Language and Communication Research

Cardiff University

May 2017

Abstract

This thesis used the Incongruity Resolution (IR) Theory of humour (Suls 1972, 1983) as a framework within which to investigate English speaking children's ability to comprehend different types of ambiguity in verbal riddles.

Five types of ambiguity (lexical, phonological, morphological, syntactic and idiomatic) were defined by the researcher based upon the way(s) in which linguistic features embedded within riddle form(s) (ie. their actual wording) contributed to producing an ambiguity. These definitions were then used to investigate participants' comprehension of verbal riddles. These definitions are recommended for future application in order to overcome previous inconsistencies in types of language phenomena constituting discrete ambiguity types when testing children's humour development and ambiguity comprehension.

Participants comprised sixty children equally divided into three primary school Year Groups: Year 2 (aged 6-7), Year 4 (aged 8-9) and Year 6 (aged 10-11). Comprehension of ambiguities was measured (a) receptively through a multiple choice task in which participants were required to identify an ambiguous punchline and (b) productively through a verbal explanation task in which participants were required to explain their understanding of a riddle containing an ambiguous word/phrase. Comprehension criteria were developed to accommodate the different ways in which participants communicated their understanding of ambiguities.

Results were used to identify areas of accelerated development in ambiguity comprehension and to establish whether some types of ambiguity are easier/harder for young children to comprehend. Facility of comprehension was linked to linguistic properties manipulated to elicit humour and to the different processing demands they require. A parallel was drawn between the developing ability to comprehend verbal ambiguities and children's early language acquisition which itself relies upon the sequential acquisition of increasingly complex language processing skills.

Findings from the study were applied theoretically to further understanding of humour development and suggestions were made as to how the final stage in McGhee's (2002) five-step framework might be further refined. Results were evaluated in order to inform classroom practice and to show how verbal riddles might be used in the classroom to meet stipulated criteria for 'learning experiences' and 'skills development' as detailed in the new (2015) Primary Curriculum for the teaching of English in Wales – specifically those relating to oracy.

Acknowledgements

Firstly I would like to thank my supervisor, Michelle Aldridge-Waddon for guiding me throughout my PhD experience. There have been some testing times along the way and Michelle has always been there to encourage and advise. Her guidance and support have helped me to work through my ‘wobbly moments’ and have contributed in great part to my coming out ‘the other side’ with a now completed thesis. Thank you Michelle.

I am also very grateful to the staff in CLCR at Cardiff University, all of whom have been most helpful in answering any queries I may have directed their way. In particular I would like to express my gratitude to Lise Fontaine who, though under no obligation to do so, offered extremely valuable feedback on earlier drafts. It was, and is, very much appreciated.

In addition to academics who have lent their support, I would like to express my gratitude to each and every participant who took part in this study. In the name of ethics you must all remain anonymous but it goes without saying that without your participation this study would never have got off the ground.

Thank you too to the ESRC who provided the funding for this project.

Lastly, but by no means least, thank you to my wonderful family. Without your love and support it would not have been possible to complete this thesis. Thank you Max and Chiara, my two fantastic children, for being the inspiration behind this study and for helping to put everything into perspective when it felt like things were getting a bit too much. Thank you Paul for all the meals you’ve cooked; thank you mum for all the ironing you’ve done while I pounded away on my laptop; and thank you dad for being stand-in chauffeur to the children when I needed that extra bit of time. It really did make all the difference.

TABLE OF CONTENTS

Abstract	i
Acknowledgements	iii
Table of Contents	iv
List of Tables	xii
List of Figures	xii
List of Abbreviations	xiii
1 Introduction	1
1.1 Background to study	1
1.2 Rationale for study	4
1.3 Aims and scope of the study	6
1.4 Research questions	7
1.5 Overview of the thesis	8
2 Literature Review	11
2.1 Chapter overview	11
2.2 Humour theories	12
2.2.1 The incongruity resolution theory of humour – a cognitive perspective	13
2.2.1.1 Incongruity	13
2.2.1.2 Incongruity and jokes	15
2.2.1.3 Incongruity, surprise and enjoyment	16
2.2.1.4 Resolution of incongruities	17
2.2.1.5 Cognitive processes in incongruity resolution (IR) humour	19

2.3	The link between children’s humour development and children’s cognitive development	21
2.4	McGhee’s framework of humour development	22
2.4.1	Stage four humour	25
2.4.2	Stage five humour	27
2.5	Children’s cognitive development within a Piagetian framework	28
2.5.1	Schemata and cognitive changes	28
2.6	The development of listening skills	31
2.7	The development of speaking skills	34
2.8	Verbal humour	36
2.8.1	Riddles	39
2.8.1.1	Puns	44
2.9	Ambiguity	45
2.9.1	Ambiguity and the violation of Grice’s maxims	47
2.9.2	Ambiguity classification	48
2.9.3	Lexical ambiguity	49
2.9.3.1	Homonymy	50
2.9.3.2	Homophony	51
2.9.3.3	Polysemy	51
2.9.4	Phonological ambiguity	53
2.9.5	Morphological ambiguity	56
2.9.6	Syntactic ambiguity	59
2.9.7	Idiomatic ambiguity	61
2.9.8	Multiple types of ambiguity	63
2.9.9	Discrepancies in ambiguity classifications	64

2.10	The national curriculum in Wales	66
2.11	Concluding comments	67
3	Methodology	71
3.1	Chapter overview	71
3.2	Research design and rationale	72
3.3	Ethics procedure	75
3.4	Participants	76
3.5	Researcher	77
3.6	Research setting	78
3.7	Stimuli	79
3.7.1	The case for using riddles	79
3.7.2	Riddle selection process	80
3.8	Ambiguity selection and classification	81
3.8.1	Ambiguity types defined	84
3.8.2	Ambiguity-based riddles used in the study	85
3.8.2.1	Riddles based upon lexical ambiguity	86
3.8.2.2	Riddles based upon phonological ambiguity	86
3.8.2.3	Riddles based upon morphological ambiguity	86
3.8.2.4	Riddles based upon syntactic ambiguity	87
3.8.2.5	Riddles based upon idiomatic ambiguity	87
3.9	Comprehension assessment	87
3.9.1	Multiple choice task	88
3.9.2	Verbal explanation task	89
3.9.2.1	Modelling answers for participants	90

3.9.2.2	Prompts	91
3.9.2.3	Gestures	91
3.9.3	Comprehension scores	91
3.9.3.1	Multiple choice scores	92
3.9.3.2	Verbal explanation scores	92
3.10	Pilot study	94
3.10.1	Pilot study rationale and administration	94
3.10.2	Pilot study procedure	95
3.10.3	Pilot study results	98
3.11	Reflection upon pilot study	98
3.11.1	Modelling	99
3.11.2	Prompts	99
3.11.3	Gestures	100
3.11.4	Stimuli elimination	101
3.11.5	‘Back up’ riddles	101
3.11.6	Transcriptions	102
3.11.7	Comprehension: identifying and explaining ambiguities	103
3.11.7.1	Identifying ambiguities	103
3.11.7.2	Explaining ambiguities	103
3.11.8	Multiple choice scores	105
3.11.9	Comprehension scale	105
3.11.10	Comprehension criteria	106
3.11.11	Raters	106
3.11.12	Timings	107
3.12	Main study procedure	108

3.13	Data collection	110
3.14	Analyses	110
3.15	Concluding comments	111
4	Results	114
4.1	Chapter overview	114
4.2	Punchline explanations	116
4.2.1	Original punchline explanations	116
4.2.2	Plausible punchline explanations	120
4.2.3	Irrelevant punchline explanations	124
4.2.4	A child's perspective	126
4.2.5	Strategies used to communicate understanding	128
4.2.5.1	Strategies used to communicate two meanings	129
4.2.5.1.1	Reference to phonemes	130
4.2.5.1.2	Manipulation of juncture	131
4.2.5.1.3	Word stress	132
4.2.5.2	Strategies used to communicate individual meanings	133
4.2.5.2.1	Word definitions	134
4.2.5.2.2	Examples of words in context	134
4.2.5.2.3	Word stress	136
4.2.5.2.4	Inflections and derivations	137
4.2.5.2.5	Indirect evidence of comprehension	138
4.2.5.2.6	Identification of idiomatic phrases	139
4.2.5.2.7	Gestures	140

4.3	RQ2: To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?	144
4.3.1	The multiple choice task: identifying ambiguities	144
4.3.1.1	Non-responses	145
4.3.1.2	Recorded responses	147
4.3.2	The verbal explanation task: explaining ambiguities ..	149
4.4	RQ3: To what extent does ambiguity type affect children’s proficiency in comprehending ambiguities in verbal riddles?	151
4.4.1	The multiple choice task: identifying ambiguities	151
4.4.2	The verbal explanation task: explaining ambiguities ..	153
4.5	Comparison of results from multiple choice and verbal explanation tasks	155
4.5.1	Parallels in findings	156
4.5.1.1	RQ2: To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?	156
4.5.1.2	RQ3: To what extent does ambiguity type affect children’s proficiency in comprehending ambiguities in verbal riddles?	157
4.5.2	A contrast in findings	159
4.6	Contextualising findings	160
4.7	Concluding Comments	163
5	Discussion and conclusion	165
5.1	Chapter overview	165
5.2	Interpretation and application of results	166
5.2.1	IR theory and children’s verbal humour comprehension	166
5.2.2	Applying findings to further understanding of humour development	167

5.2.2.1	Supporting the humour model	167
5.2.2.2	Challenging the humour model	168
5.2.2.3	Developing the humour model	169
5.3	Factors affecting outcomes	170
5.3.1	Riddles	170
5.3.1.1	Riddle position	171
5.3.1.2	Punchline position	171
5.3.1.3	Warm-up riddles	174
5.3.1.4	Substitute riddles	175
5.3.1.5	Individual riddle scores	177
5.3.1.5.1	Individual riddle scores in the multiple choice task	177
5.3.1.5.2	Individual riddle scores in the verbal explanation task	180
5.3.1.5.3	Comparing individual riddle scores across tasks	183
5.3.2	Processing skills	184
5.3.2.1	Cognitive development	184
5.3.2.2	Listening development	186
5.3.2.3	Word knowledge	190
5.3.2.3.1	The mental lexicon	190
5.3.2.3.2	Homonymy and Homophony..	191
5.3.2.4	Layers of processing	192
5.4	Implications for classroom practice	196
5.4.1	Using riddles in the Key Stage 2 classroom	197
5.4.2	Using riddles to provide ‘learning experiences’	199
5.4.2.1	Listening	200

5.4.2.2	Responding orally	200
5.4.2.3	Word choices, meanings and impact	202
5.4.3	Using riddles to promote skills development	203
5.4.3.1	Listening	203
5.4.3.2	Speaking	204
5.4.3.3	Collaboration and discussion	209
5.5	Limitations of study	209
5.5.1	Participants	209
5.5.2	Child variation	210
5.5.3	Ambiguity types tested	211
5.5.4	Number of riddles used to test each ambiguity type ...	211
5.5.5	Riddle exposure	212
5.6	Issues arising and areas for future study	213
5.6.1	Ambiguity definitions	213
5.6.2	Comprehension criteria	214
5.6.3	Developing the humour model further	217
5.6.4	Bilingualism	218
5.7	Concluding comments	218
	Reference list	222
	Appendices	240
	Appendix 1: Approved checklists for ethical practice	240
	Appendix 2: Letter/consent form for participation in main study	247
	Appendix 3: Definitions of ambiguity types for the purpose of the current study	250
	Appendix 4: Riddles trialled in the pilot study	251

Appendix 5: Riddles used in the main study	254
Appendix 6: Scoring information for independent raters	259
Appendix 7: Transcriptions of participants' explanations for punchline choices	270
Appendix 8: Original punchline selections for individual riddles in the multiple choice task	396
Appendix 9: Mean scores for individual riddles in the verbal explanation task	398

List of Tables

Table 1: Multiple choice punchlines chosen by Year Groups	145
Table 2: Original punchline selections by ambiguity type for individual Year Groups	151
Table 3: Mean scores by ambiguity type for the verbal explanation task	154
Table 4: Differences in ambiguity explanation scores between consecutive Year Groups	155
Table 5: Number of substitute riddles required per ambiguity type ..	175
Table 6: Original punchline selections for individual riddles in the multiple choice task	396
Table 7: Mean scores for individual riddles in the verbal explanation task	398

List of Figures

Figure 1: Summary of McGhee's revised stages of humour development (2002)	23
Figure 2: Punchline selections made by Year Groups	148
Figure 3: Mean explanation scores by Year Group	150

List of Abbreviations

BF:	Bona fide
CP:	Co-operative principle
KS2:	Key Stage 2
NBF:	Non bona fide
PoS:	Programme of Study
RQ:	Research question
VEH:	Verbally expressed humour
VH:	Verbal humour

CHAPTER 1: INTRODUCTION

1.1 Background to study

'Why can't a car play football?'

'Because it's only got one boot.'

The riddle above constitutes a specific type of question-answer joke in which linguistic form has deliberately been manipulated to produce an ambiguity (in this instance the word 'boot') and is the joking format most favoured by young children (Wolfstein 1954, Zipke 2007, 2008). Although this type of joke can be traced back to the times of the ancient Egyptians (Adams 2008), it continues to enjoy popularity today and commonly appears both in specialist joke books (Powell 2003, Barnham 2010, Simon 2010, Rogers 2012, Coupe 2013, Reynolds 2014) and online in an ever-proliferating number of websites such as www.punoftheday.com, www.laffgaff.com, www.funology.com, www.kidsjokes.co.uk. But what exactly is it about riddles – and jokes in general - that has made them such a popular phenomenon across the ages?

This question can in large part be answered by the fact that the primary criterion for a riddle's success is the activation of a humorous response which is itself inherently based upon a feeling of pleasure or enjoyment. The simple act of 'hearing' a riddle does not necessarily mean that this humorous response will automatically be activated however. It can only be triggered if the listener is able to *perceive* a riddle as being intentionally funny. In the case of verbal riddles such as the above, the ability to perceive humour¹ will in turn depend upon the extent to which an individual is able to consciously reflect upon the way(s) in which language has been deliberately manipulated in order to elicit humour. In other words a

¹ This thesis has been produced for submission to a British university. In instances where British English and American English orthographies differ (eg. humour/humor), British orthography is employed. The exception to this rule is in citations where the original orthography has been retained.

listener² first has to ‘understand’ the intended humour - by making sense of why certain words/phrases have been used – before any enjoyment or pleasure can be experienced. It is specifically the development of this ‘understanding’ aspect of riddles, typically said to start to emerge around the age of 7 (McGhee 1971a, 1971b, 1972, 1977a, 1979, Bariaud 1989) that forms the basis of the current investigation. The study aims to determine whether the different ways in which language is manipulated to produce ambiguities contributes to facility of comprehension, especially as young children first start to develop an understanding of the ways in which verbal humour ‘works’.

Given that there are other aspects of children’s linguistic development which have traditionally been perceived as carrying more gravitas than ‘getting’ a joke, this area of research might seem, to some, self-indulgent. This would be to miss the point. In order to ‘understand’ a riddle such as the above, a listener has to be able to locate an incongruity (in terms of an ambiguous word/phrase), to assign two (or more) meanings to a single form (ie. the ambiguous word/phrase) and to be able to go back and forth between meanings in order to figure out how they both make sense within a single riddle. ‘Getting’ a riddle therefore requires a listener to work harder (in terms of cognitive and linguistic processing) than does processing of non-ambiguous everyday texts. The very fact that riddles stretch cognitive and linguistic processes in this way means that they are a valuable tool for the practising teacher (Yuill 1998, 2009, Zipke 2008). Any investigation into children’s understanding of verbal riddles is therefore likely to yield results of interest not only to those involved in humour development,³ but also to those involved in the education of young children. The more that educators can find out about children’s humour development, the more they can apply findings within the primary classroom in order to tailor resources for individual Year Groups and use verbal riddles as a resource with which to help advance children’s cognitive, linguistic and metalinguistic

² This is an aural/oral investigation. Therefore, whilst jokes can be either ‘read’ or ‘heard’, the term ‘listener’ is used to denote the recipient of any joke.

³ Also those involved in the study of child development, developmental psychology, applied linguistics.

development. Riddles in particular are advantageous in promoting such skills because they do so in a way that is enjoyable for pupils. They are useful in motivating children because they are fun and constitute an oral form of ‘play’ which is itself an integral element in the physical, emotional, social and intellectual development of all children (Ginsburg 2007, Welsh Government 2008, Goldstein 2012).

Despite the above, this area of investigation has received relatively little attention in recent decades. Other than papers by Yuill (1998, 2009) and Zipke (2007, 2008, 2009) which focus on the link between humour development and reading ability, most of the literature regarding children’s developing understanding of verbal riddles is based on studies which were carried out in the seventies (McGhee 1974, 1977a, 1977b, Shultz 1974, Shultz & Horibe 1974, Fowles & Glanz 1977, Hirsh-Pasek Gleitman & Gleitman 1978). Several of these studies focused on the ways in which children’s humour development advances in line with a developing understanding of different ambiguity types and have led to claims being made about the facility with which different ambiguity types are comprehended by young children (Shultz & Pilon 1973, Shultz 1974, Shultz & Horibe 1974, Brodinsky 1977, Hirsh-Pasek et al 1978). These claims, though dated, still stand today - although findings do not necessarily correspond when compared across studies.⁴ Whilst different types of language-specific ambiguities were included in such studies the focus often centred upon developing a framework to account for children’s humour advancement, rather than upon the specific properties of language that were being tested or how this might inform curriculum content and classroom practice (unlike the current investigation). Previous studies have frequently lacked ambiguity definitions (leaving the reader unsure of what language phenomena they are supposed to embody) and even when definitions have been included, they have not always been interpreted and/or applied in the same way. This means that reported findings for children’s comprehension of discrete ambiguity types do not always correspond with the language

⁴ This is likely to be, at least in part, due to the fact that findings stem from early research conducted within the fields of psychology and humour studies – and not within the field of linguistics.

properties they purport to test. This consequently not only makes it difficult to identify trends across studies in relation to children's comprehension of discrete ambiguity types but also prohibits informed decisions being made in relation to types of ambiguity-based jokes best suited for use with individual Year Groups across Key Stage 2 (pupils aged 7-11).

The current study aims to address this issue through thorough analysis of language phenomena constituting different ambiguity types and by providing clearly defined categories of ambiguity with which to test children's comprehension of the different types. These definitions will allow the researcher to be sure of the ambiguity type(s) being tested at any given time and they can also be duplicated in future studies. This will also allow for findings to be compared and contextualised more readily across studies in future, thereby contributing to a more comprehensive body of knowledge within the field of children's humour development than has been the case to date.

1.2 Rationale for study

As discussed thus far, verbal riddles are an important means of cognitive stimulation and provide an ideal medium for learning and practising how language can be manipulated (Fowles & Glanz 1977, Zipke, 2008, 2009, Yuill 1998, 2009). This is because:

- they provide listeners with the opportunity to flex their cognitive/linguistic skills by forcing them to contemplate how an individual word/phrase can have more than one meaning in a given context
- they require listeners to consider, reconsider – and apply – more than one interpretation to that which has been heard
- they require listeners to consciously reflect upon language phenomena which are often otherwise implicit and thus activate tacit linguistic knowledge

- they help develop metalinguistic awareness - itself a skill associated with general literacy development (Yuill 2009, Zipke 2007, 2008, 2009).

In light of the above, verbal riddles, specifically those which rely upon ambiguous use of language, are an invaluable resource for the classroom teacher. Much like any other teaching resource however, they will only enhance learning if developmentally appropriate and pitched at the appropriate 'level'. A riddle's 'appropriateness' will depend upon its complexity and this in turn is likely to depend upon the different ways in which linguistic phenomena have been manipulated in order to produce the ambiguities upon which riddles hinge. Discrete ambiguity types are manifested at different levels of language and rely upon varying linguistic properties. Some ambiguity types are said to be easier to comprehend than others (Shultz & Pilon 1973, Shultz 1974, Shultz & Horibe 1974, Hirsh-Pasek et al 1978, Yuill 1998), especially as children first start to acquire the ability to decode ambiguous words/phrases in joking texts. There is however little consensus as to which types of ambiguities might be most readily understood by young children - despite the benefit this knowledge would be to the classroom teacher who is, by law, required to include texts exemplifying 'humour' and 'wordplay' across the whole of Key Stage 2 (Welsh Government 2015b).

This study intends to look at the reasons behind this lack of consensus and to address identifiable shortcomings which may have led to discrepancies in previous findings. In addressing any such shortcomings it will then be able to provide soundly-based findings for both theoretical and practical application. Findings will be used to further understanding of the way in which humour development advances, specifically the final stage during which verbal ambiguities start to be understood. Findings will also be used to identify the order in which different types of ambiguity-based verbal riddles might be introduced into the primary classroom in order to maximise opportunities for the development of children's cognitive, linguistic and metalinguistic skills - specifically in relation to oracy.

1.3 Aims and scope of the study

This study, then, investigates the comprehension of a specific type of joke form, namely the verbal riddle. This type of joke comprises a short question-answer text (such as that illustrated at the beginning) in which different types of linguistic rules and/or forms are flexed or distorted to produce an ambiguity (in this study either a word or phrase), both meanings of which need to be identified by the listener in order that a humorous response be activated.

One of the main aims of the study is to determine how children's comprehension of ambiguity-based riddles differs between Year 2 (a school Year Group containing pupils aged 6-7), Year 4 (a school Year Group containing pupils aged 8-9) and Year 6 (a school Year Group containing pupils aged 10-11). Comprehension will be measured both receptively (through identification of an ambiguity in a multiple choice task) and productively (through explanation of an ambiguity in a verbal explanation task). A set of comprehension criteria will be developed to accommodate the different ways in which participants communicate their understanding of ambiguities.

The study also aims to determine whether ambiguity type affects the facility with which riddles are understood, depending upon the linguistic phenomena embedded – and exploited - within the riddle form itself (ie. its actual wording)⁵. Five types of ambiguity will be tested - lexical, phonological, morphological, syntactic and idiomatic – and in the absence of any clearly-defined published ambiguity classifications⁶ – definitions will be provided for each of these ambiguity types.

Findings will be used to advance understanding of the facility with which different types of ambiguity(s) are understood upon transition to, and

⁵ Potential overlap in ambiguity types was eliminated wherever possible so that the researcher could be sure of the ambiguity type(s) being tested at any given time.

⁶ In terms of practical application for testing with young children.

within, the final humour stage (McGhee 1979, 2002) which typically occurs around the age of 7, and to examine how different language phenomena contribute to this effect. Outcomes will be used to develop understanding of humour development – and to propose refinements relating to the final stage within McGhee’s 5-stage humour framework (McGhee 1979, 2002).

In addition to the above, the study will review the new Key Stage 2 Programme of Study for the teaching of English in Wales (implemented in primary schools in September 2015) in order to evaluate statutory requirements for the teaching of oracy in light of the findings. Outcomes can then be used to inform teachers, classroom practitioners and publishers of primary educational resources of the different types of ambiguity-based verbal riddles comprehended by children aged 6-11 and to suggest how ambiguity-based riddles might be introduced in the classroom across Key Stage 2 (KS2) in order to maximise learning opportunities. Links will be made between findings and the ways in which they can be used to link with statutory requirements for the provision of ‘learning experiences’ and oracy skills in Welsh primary schools across Key Stage 2 (children aged 7-11).

1.4 Research questions

To achieve its objectives the study addresses four main Research Questions:

1. In which way(s) can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children’s humour comprehension?
2. To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?
3. To what extent does ambiguity type affect children’s proficiency in comprehending ambiguities in verbal riddles?
4. To what extent can findings be used to develop understanding of children’s humour development?

By addressing the above four questions, findings can also be used to inform classroom practice through identification of developmentally appropriate riddles (based upon linguistic phenomena) for use across Key Stage 2.

1.5 Overview of the thesis

Following on from this introductory chapter, chapter 2 presents an overview of the literature. It opens by explaining why the Incongruity Resolution (IR) Theory of humour was chosen as a framework within which to base this study and aims to familiarise the reader with the way in which this theory ‘works’, especially in relation to verbal humour. Discussion then moves on to McGhee’s five stages of humour development (McGhee 1979, 2002), specifically stage 5, since this is the stage during which children are said to start to develop their understanding of verbal humour. Cognitive changes which have traditionally been linked to children’s humour development are examined together with children’s developmental acquisition of oracy skills, both speaking and listening. This chapter also clarifies terms and concepts central to this study for the reader, namely ‘verbal humour’, ‘riddles’, ‘puns’ and ‘ambiguity’ in order to eliminate potential misinterpretation when encountered in subsequent chapters and discussion. The latter term, ‘ambiguity’, is subdivided into five discrete sub-types (lexical, phonological, morphological, syntactic and idiomatic) and each is examined in close detail. The chapter concludes by explaining what the National Curriculum is, why it exists and examines how findings from the study might be applied to meet current stipulations contained within the curriculum for the teaching of English – specifically oracy – in primary schools in Wales.

Chapter 3 provides a description of the methodology employed in the current investigation and highlights ethical considerations facing the researcher when working with young children. The chapter describes in detail a pilot study and records how findings from the pilot study were used to refine the final methodology for the main study. The chapter takes up issues raised earlier in the literature review such as the lack of published

ambiguity classifications to which a researcher might refer when testing children's humour comprehension and the lack of established criteria with which to assess children's comprehension (through verbal response) – and discusses the ways in which these issues were addressed by the current researcher. This means that, through necessity, the first research question, 'In which way can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children's humour comprehension?' is addressed at this stage in the thesis.

Chapter 4 presents the results from the multiple choice task and the verbal explanation task, both of which were designed to test children's comprehension of ambiguities in verbal riddles. Results are evaluated both qualitatively and quantitatively in order to answer research questions 2 and 3, namely 'To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?' and 'To what extent does ambiguity type affect children's proficiency in comprehending verbal ambiguities?'

Chapter 5 applies findings to address the final research question, RQ4, 'To what extent can findings be used to develop the understanding of children's humour development?' Discussion focuses on how outcomes simultaneously both support and challenge McGhee's (1979, 2002) established model of humour development and results are used to make proposals as to how the final stage of this framework of humour development might be further refined.

Factors that might possibly have contributed to outcomes are examined such as the stimuli used in the study, the way(s) in which stimuli were presented to participants and the extent to which children's developing cognitive and language processing skills might have contributed to outcomes.

Findings are subsequently evaluated to inform classroom practice – specifically in relation to oracy skills as laid out in the current Programme of Study for the teaching of English across Key Stage 2 in primary Schools in Wales.

Potential limitations of findings are reflected upon and areas for future research are suggested. The chapter concludes by highlighting issues arising and areas for future study.

CHAPTER 2: LITERATURE REVIEW

2.1 Chapter overview

This chapter opens by explaining why a specific humour theory, that of Incongruity Resolution (IR), was selected as a framework within which to test children's humour comprehension. It presents an overview of the IR model in terms of how it 'works' and describes how this theory in particular accounts for the cognitive processes inherent in the comprehension of humorous texts (section 2.2).

The chapter then moves on to examine the stage during which IR theory might be applied to children's developing humour comprehension and outlines the link between cognitive changes that typically occur at the age of seven and children's developing comprehension of humorous texts within an IR framework (section 2.3). Application of IR theory is linked to children's transition from stage 4 humour to stage 5 humour within McGhee's (1979, 2002) framework of development and McGhee's humour framework is outlined in its entirety in order to contextualise the specific humour stage(s) under current investigation (section 2.4).

The following section (section 2.5) picks up a thread from earlier discussion and examines in more detail the specific cognitive changes that are said to contribute to children's developing ability to comprehend verbal humour based on ambiguous use of language. Other developmental aspects that have to be accommodated in a study of this nature, such as the acquisition of listening and speaking skills are also considered.

Section 2.6 reviews the process of listening, and the stages it involves, for the successful comprehension of orally-narrated verbal riddles. Each stage of the listening process is linked to stages contained within the present investigation. Section 2.7 highlights the fact that language comprehension precedes language production and records the sequential acquisition of productive language skills that children typically undergo.

The concept of verbal humour, a term central to this study, is subsequently explored in section 2.8, and riddles are analysed as a specific joke form within this humour genre. Discussion focusses on the ways in which riddles use puns as a device with which to exploit multiple meanings. Paradigmatic puns in particular are examined in close detail as it is this type of pun which is exclusively used within this study.

A further term central to this study, that of ambiguity, is examined in section 2.9. Ambiguity is reviewed both as a general notion and as five discrete sub-types: lexical, phonological, morphological, syntactic and idiomatic. The ways in which these five sub-types have been interpreted and applied in previous studies is reviewed and consideration is given to why and how they have been interpreted and applied inconsistently in earlier investigations.

The chapter concludes by explaining what the National Curriculum is and how it has recently been revised in Wales (section 2.10). It highlights changes in statutory requirements for the teaching of English in primary schools in Wales, specifically those relating to oracy, to which findings from the current investigation might be applied.

2.2 Humour theories

Theories of humour have attracted much debate over the centuries and can be traced back to the times of Plato and Aristotle. Despite such historical foundations, there still exists no universally accepted single theoretical framework of humour. This may partly stem from the fact that humour has received so much inter-disciplinary attention (from the fields of anthropology, computing, folklore, linguistics, medicine, philosophy, psychology and sociology) and that different theories have evolved to address the different functions that humour has played in society across the ages.

Whilst many theories can be found in the literature (see Keith-Spiegel 1972 and Morreall 1987), there are three major theories which repeatedly appear,

namely the Relief-Release Theory, the Superiority Theory and the Incongruity Resolution Theory. The Superiority Theory (also Aggression and Schadenfreude Theory) views humour as arising from pleasure derived from other people's shortcomings/deficiencies (see Hobbes 1651) while the Relief-Release Theory (see Freud 1905) perceives humour as a way of releasing social tensions and providing psychological relief. The theory which provides the framework for this study however is the Incongruity Resolution (IR) Theory. Unlike the other two major theories, the IR Theory is based upon comprehension and therefore specifically relates to the understanding of humorous texts, as investigated here.

2.2.1 The incongruity resolution theory of humour – a cognitive perspective

Because the Incongruity Resolution Theory focuses on the 'understanding' aspect of humour, it places emphasis upon the underlying cognitive structure of humour (Suls 1972, 1983, Shultz 1976, McGhee 1979, Polimeni & Reiss 2006, Larkin-Galinanes 2017). It has a long tradition (see Martin 2007) and can be traced back to the times of the ancient Greeks (McGhee 1979, Attardo 1997, Larkin-Galinanes 2017), with Aristotle (Rhetoric III, 2 cited in Morreall 1987:14) informing us that the best way to get an audience to laugh is to set up an expectation and then surprise it with an unexpected outcome. Although Aristotle laid no claim to developing a theory of humour per se he nonetheless initiated a debate which has since spanned the centuries and which is now examined in more detail below.

2.2.1.1 Incongruity

As the name might suggest the Incongruity Resolution Theory comprises two parts - incongruity and resolution - and evolved from an earlier theory which centred solely upon incongruity. This earlier theory was simply known as Incongruity Theory and contributes in large part to IR theory in its current form.

The first actual formulation of Incongruity Theory has often been attributed to the Scottish poet Beattie. In 1776 Beattie (cited in Raskin 1985:32)

described laughter as arising from ‘the view of two or more inconsistent, unsuitable, or incongruous parts or circumstances, considered as united in complex object or assemblage, or as acquiring a sort of mutual relation from the peculiar manner in which the mind takes notice of them.’ Since Beattie’s initial formulation, the concept of incongruity has subsequently been described as ‘two or more real objects being thought through one concept’ (Schopenhauer 1818:59), a ‘clash’ of ‘associative contexts’ (Koestler 1964:35) and a ‘bisociative shock’ (Koestler 1964:91). More recently it has been characterised as ‘the linking of disparates’ (Monroe 1951 cited in Carrell 2008:311) and that which is ‘opposed to congruence, that is, that which is obvious and evident’ (Lefort 1992:149). Kant (1790), Bergson (1911), Freud (1905), Suls (1972, 1983), Shultz (1976), Raskin (1985) and Attardo & Raskin (1991) have all debated and contributed to the development of Incongruity Theory.

Those cited above all concur that Incongruity Theory treats humour as a reaction to something that violates previously set-up experiences and expectations, ie. it results from an inconsistency between what is expected and what is perceived. Expectations are initially formulated ‘on the basis of observed similarities in the sensory input’ (Attardo 1997:414) and then used by an individual to ‘postulate[s] a regularity, which is then abstracted into a rule. On this basis he/she makes predictions as to the future behaviour of the stimuli source (ie. he/she sets up expectations)’ (Attardo 1997:414). When these expectations are fulfilled there is *congruity* but when they fail to conform (ie. fail to meet expectations) it is perceived as *incongruity*.

Shultz (1976:23) highlights the fact that ‘incongruity is never a single object or event but rather a relationship between two objects or events, such that the first sets up expectations which are disconfirmed by the second’. McGhee (1979:6) agrees, stating that incongruity is based in ‘the relationship between components of an object, event, idea, social expectation and so forth.’ Although some types of incongruous relationships might be more readily identifiable than others, there is no relationship that can universally be viewed as being ‘incongruous’ however.

As Forabosco points out, any violated expectations will depend upon an individual's 'subjective probability' and their unique 'cognitive model' (Forabosco 1992:55), which means that there is a 'high degree of individual variability in the perception of incongruity' (Forabosco 1992:56). This means that a stimulus cannot in itself be considered incongruous. It is only incongruous if 'perceived and appreciated as such by the listener' (Lefort 1992:150).

This is of particular relevance when it comes to the humour of children. What a child perceives as being incongruous is not necessarily that which an adult would perceive as being incongruous (and vice versa). Consequently studies such as the present one need to accommodate this fact. Vocabulary and concepts contained within stimuli (in this instance riddles) need to be familiar to children in order that any incongruity be perceived as being incongruous. If this is not accounted for within the research design, a child might well be prevented from perceiving an incongruity as such, simply because he⁷ has yet to acquire the relevant conceptual knowledge (as opposed to lacking the requisite cognitive skills).

2.2.1.2 Incongruity and jokes

Incongruities in joking texts are realised between 'the expected answer and actual answer' (Fowles & Glanz 1977:437), creating a 'momentary imbalance in the organization of familiar schemas' (Bariaud 1989:17). Thus incongruity occurs when the initial scenario evoked by a joke suddenly deviates (upon delivery of the punchline). Suls (1983:41) defines this type of incongruity as constituting 'the discrepancy between two mental representations, one of which is an expectation (presumably derived from, for example, the main body of a joke preceding the punchline) and the other is some idea or percept (for example, as contained in the punchline)'.

The 'mental representations' that Suls refers to can be evoked by 'a single sound, word, expression or situation' (Dubinsky & Holcomb 2011:2) and

⁷ In the absence of a gender neutral third person pronoun in English the term 'he' is used throughout to denote a hypothetical individual.

the defeated expectation (ie. incongruity) can be triggered ‘at various linguistic levels - the lexical [. . .] and grammatical [. . .], or the level of register and genre’ (Goatly 2012:23). In order to access the two different mental representations the listener has to be able to identify two different meanings for a single word or phrase. In other words he has to ‘consider an alternative (playful) interpretation of the speaker’s utterance due to the fact that the first (expected/common) reading does not lead to a meaningful/communicatively adequate interpretation’ (Winter-Froemel 2016:18).

2.2.1.3 Incongruity, surprise and enjoyment

It has been argued that incongruity alone cannot account for humour because not all incongruities are intrinsically funny. Some incongruities can be threatening or puzzling (Palmer 1994, Morreall 1987, 1989) and there are many incongruities likely to evoke anything but a humorous response: ‘A decrepit man under a heavy burden, five loaves and two fishes among a multitude, and all unfitness and gross disproportion; an instrument out of tune, a fly in ointment, snow in May, Archimedes studying geometry in a siege, and all discordant things . . . are all incongruous, but they cause feelings of pain, anger, sadness, loathing, rather than mirth’ (Bain cited in Holt 2008:92-93). Incongruity per se is thus not enough to create humour in itself. Incongruity must also elicit specific types of responses from the listener – such as those of surprise and enjoyment.

Enjoyment itself has already been identified as the main factor comprising any humorous response (see section 1.1) and a major element affecting this response, especially when listening to a joke, is the manner in which an incongruity is identified. Attardo (1997) asserts that an incongruity has to be sudden rather than gradual in order for any joke to be effective, and Oring (1989:351) agrees, stating that the punchline ‘triggers the perception of an appropriate incongruity... [and] ... must bring about an abrupt cognitive reorganization in the listener’. An incongruity therefore needs to constitute a ‘transitory experience[s]’ (Abrahams 1972:178) in order for a

joke to succeed. This is because ‘we must be caught off guard’ (Morreall 1987:133) and ‘because it must surprise’ (Lefort 1992:151).

Suls (1972:91) develops this line of argument a step further by stating that ‘the degree of incongruity is directly related to the amount of surprise experienced, and the amount of surprise that the punch line creates should produce a corresponding need to solve the problem’. In other words, he claims that an incongruity, in the context of a joking text, needs not only to be sudden, but also to be ‘solved’ in order to be made sense of. It is thus often argued that an incongruity will only disappear ‘when the pattern is seen to be meaningful or compatible in a previously overlooked way’ (McGhee 1979:7). This then is said to comprise the resolution component of the Incongruity Resolution Theory.

2.2.1.4 Resolution of incongruities

Some have argued that the resolution phase need not necessarily occur for humour to be experienced (eg. Nerhardt 1970, 1976 and Rothbart 1976). Its existence is nonetheless generally accepted, especially in relation to verbal humour, since this type of humour requires a certain level of understanding from the listener in order that they ‘get’ (ie. make sense of) a joke.

Resolution, when combined with incongruity identification, is what allows a listener to comprehend a verbal joke.

The resolution phase of humour perception has also been called ‘justification’ (Aubouin 1948), ‘local logic’ (Ziv 1984) (both cited in Attardo 1997:405) and ‘sense in non sense’ (Freud 1905). It follows (temporally) the identification and location of an incongruity and involves the listener, having encountered an incongruity in a joke, engaging ‘in a form of problem solving to find a cognitive rule which makes the punchline follow from the main part of the joke and reconciles the incongruous parts’ (Suls 1972:82).

It should be noted here that although both incongruity and resolution play an important role in an adult’s comprehension and appreciation of jokes, this

does not necessarily hold true for young children's humour. During the early years in particular children's humour is often characterised by the appreciation of pure incongruity per se. Early stages of humour development tend to be based upon conceptual and visual, as opposed to verbal, incongruities, eg. a picture of a dog playing a piano (McGhee 1979, 2002), which do not need to be resolved. It is only later that resolution starts to play a meaningful role in children's humour development. The ability - and need - to resolve incongruities is a gradual process which does not start to develop until children begin to engage with the types of verbal humour that adults enjoy, much of which is ambiguity-based and needs to be comprehended in order to be enjoyed (discussed further in section 2.4).

Whilst Suls has likened the resolution phase to a type of problem-solving, he also stresses that 'it appears to be much faster, almost automatic' (Suls 1983:43). The resolution phase must therefore take place rapidly, otherwise the humorous experience will be minimal. Moreover, if this phase does not occur at all, then a joke is unlikely to be perceived as being a joke by a listener. Instead, it is likely to be perceived as nothing other than an incongruous text, leaving the listener frustrated and perplexed. Verbal jokes must therefore be resolved (ie. 'understood') in order that any humorous response be activated. This means that a listener has to be not only capable of identifying an incongruity but also able to go back and develop a new, or alternative, rule so that the incongruity can be made sense of, ie. he needs to be able to resolve it so that the joke can then rightly be perceived as such.

Verbal jokes in particular, such as the riddles used in this study, demand specific skills of the listener in order that the incongruities upon which they depend be resolved. In such jokes the incongruity is usually contained within an ambiguity – a word or phrase with more than one meaning and interpretation – which means that the listener is required to consciously reflect upon linguistic phenomena embedded within the actual wording of a joke in order to make sense of it. As such, this depends 'not only on mastery of all the linguistic components of the riddle, but on the inclination to attend to the workings of language itself as a source of humour' (Fowles

& Glanz 1977:437). Even when the listener is skilled enough to be able to consciously reflect on language phenomena in this way, it does not necessarily mean that the incongruity is eliminated, however. It simply means, as Forabosco (1992:59) points out, that the listener is left with ‘a congruent incongruity’ ie. an incongruity that has been made sense of.

2.2.1.5 Cognitive processes in incongruity resolution (IR) humour

As discussed above, the fact that the IR theory is based upon identification and resolution of incongruities means that it is a theory based upon comprehension. As Bariaud (1989:20) explains, ‘resolution is the complement of identification of incongruity, and they together make up comprehension, the intellectual part of the humor reaction which is an indispensable basis for amusement’. Humour comprehension – within the IR framework - is therefore generally viewed as a two-stage information processing model as outlined by Suls (1972) and involves:

Stage one

Discovery of an incongruity (when the punchline demands an alternative interpretation).

Stage two

Resolution of an incongruity (when the hidden meaning is discovered/explained).

In stage one of this model, ‘the perceiver finds his expectations about the text disconfirmed by the ending of the joke . . . In other words, the recipient encounters an incongruity – the punch line’ (Suls 1972:82). As we have already seen, this in itself is not enough to activate the humour response. Stage two also needs to be experienced, since ‘humor derives from experiencing a sudden incongruity which is then made congruous’ (Suls 1972:82). Stage two requires the listener to formulate a cognitive rule so that he is able to make sense of the content in the punchline. If stage two does not occur, then there is no resolution stage - the listener will not ‘get’ the joke and the humour response will not be activated.

As outlined above, this reinterpretation process involves the listener seeking an alternative meaning/interpretation to that which was initially formulated. Seeking and discovering an alternative meaning does not mean that the initial interpretation is discarded, however. As Attardo (1997:397) points out, 'the two interpretations must obviously coexist, at least to the extent that they are to be judged incongruous'. The two meanings must therefore be 'conserved in "working memory" for a certain period of time necessary for the research of a cognitive rule capable of solving the incongruity' (Attardo 1997:412). Suls himself acknowledges that it is difficult to pin down exactly the precise nature of any such cognitive rule, but he nonetheless defines it as constituting 'a logical proposition, a definition, or a fact of experience' (Suls 1972:82) which once retrieved makes it possible to reconcile the incongruous part(s) of the joke. The humorous response can then be activated and the listener is able to experience a feeling of pleasure and enjoyment.

In order that this feeling of enjoyment be maximised during the resolution phase of a joke, the incongruity must be neither too easy nor too difficult (Suls 1972, McGhee 1976, 1979). Too easy, and any feeling of success upon 'getting' the joke will be minimised. Too difficult, and the joke will not be understood. This corresponds with the cognitive-congruency principle developed by Zigler, Levine & Gould (1966) in their study on cartoon humour which led them to conclude that stimuli which make few cognitive demands 'are perceived as being less funny than those that are in keeping with the complexity of the child's cognitive apparatus' (Zigler et al 1966:517). McGhee, having applied this principle to a study on verbal humour, comes to a similar conclusion: 'an optimal moderate amount of cognitive challenge is associated with maximal appreciation of humor' (1976:420). It is therefore generally agreed that 'humor should reach some maximum level with jokes that involve a moderate level of difficulty for the recipient's cognitive capability' (Suls 1972:92).

In the case of children's humour this level of difficulty will be subject to variation as changes in cognitive abilities affect their ability to comprehend

various types of humour at different developmental stages (see section 2.4 for a fuller discussion). Findings from the current study will be used to address the cognitive-congruency principle by determining degrees of cognitive complexity (and developmental appropriacy) of ambiguity-based riddles through examination, and testing, of different types of language phenomena manipulated in order to elicit humour. Outcomes can consequently be used to inform teachers of the types of ambiguity-based riddles most appropriate for use across Year Groups in order to maximise learning opportunities.

2.3 The link between children's humour development and children's cognitive development

The IR theory of humour, as outlined above, has been used as a framework for previous studies on children's developing humour comprehension and appreciation (McGhee 1971b, Shultz 1974, Shultz & Horibe 1974).

Different types of ambiguities have been used, and tested, in such studies but the primary focus has been upon humour development rather than linguistic phenomena and classification of ambiguity types tested. This has allowed for advances in developing a model of children's humour development within an IR framework but often at the expense of precision in ambiguity classification(s) – an issue the current study intends to address.

Findings from previous studies suggest that prior to a certain stage in children's humour development, incongruity alone is sufficient to elicit a humorous response (see section 2.4 for a fuller discussion). Only at a later stage, around the age of 7, is a preference for resolvable incongruity said to emerge (McGhee 1971b, 1979, Shultz & Horibe 1974, Shultz 1974, Bariaud 1989). Hence McGhee concludes that 'a child's level of cognitive functioning is a highly significant variable in determining his comprehension of humor based on incongruity' (1971b:135). It is thus cognitive development (as opposed to general intelligence levels) that is said to contribute to changes in a child's humour development (McGhee 1971a, 1971b, 1979, Bariaud 1989). Of particular significance here are the cognitive changes which accompany a child from a stage of preoperational

thought to one of concrete operations (Piaget 1950). (These changes are discussed further in section 2.5).

Although the studies cited above all concur as to the stage/age during which children start to comprehend verbal ambiguities, they - and others - differ as regards the facility with which different types of ambiguities are reported to be comprehended by young children (Shultz & Pilon 1973, Shultz & Horibe 1974, Hirsh-Pasek et al 1978, Yuill 1998). This is partly because ambiguities have been tested in varying combinations and partly because they have been interpreted in widely different ways. A lack of precision as to the types of language phenomena constituting different ambiguity types previously tested means that it is difficult to compare findings across the field or to make informed judgements about the types of ambiguity which are first comprehended by children, especially as they enter the final stage of humour development (discussed below). The current study aims to address this issue by focusing closely on the discrete types of language phenomena different ambiguity types constitute and by providing precise definitions for each type of ambiguity tested so that the researcher can be sure of the language properties that are being tested at any given time. Findings can subsequently be related to specific language phenomena involved in the manipulation of dual meanings and the effect they have on children's humour comprehension as they enter the final stage of humour development. This final stage has been identified as typically occurring around the age of 7 (McGhee 1971b, 1972, 1977a, 1979, Shultz & Horibe 1974, Shultz 1974, 1976, Bariaud 1989) and is discussed and contextualised more fully below.

2.4 McGhee's framework of humour development

Of the many studies on children's humour development in the 1970s, by far the most prolific were those carried out by McGhee (1971a, 1971b, 1972, 1974, 1976, 1977a, 1977b). McGhee's early findings resulted in his developing a four stage model to account for progressive changes in children's humour development (McGhee 1979). His original model links changes in humour with general cognitive development according to a

Piagetian theoretical framework (Piaget 1950, Wadsworth 1989). Stages include a pre-humour stage, three early humour phases (where a child enjoys unresolvable incongruity/nonsense) and a subsequent phase when a child starts to comprehend resolvable jokes. McGhee (2002) later revised this model to incorporate a new humour level (Laughter at the Attachment Figure) as well as more detailed sub-categories relating to levels three and four humour. The revised model comprises five humour stages and is summarised below:

Figure 1. Summary of McGhee’s revised stages of humour development (2002)

Stage 0: Laughter without humour (0 to 6 months)
Stage 1: Laughter at the attachment figure (6 to 12-15 months)
<p>Stage 2: Incongruous actions towards objects (12-15 months to 3-5 years)</p> <ul style="list-style-type: none"> • Treating an object as if it were a different object (eg. using a shoe as a telephone handset).
<p>Stage 3: Incongruous labelling of objects or actions (2 to 3-4/5 years)</p> <ul style="list-style-type: none"> • Misnaming objects or actions (eg. naming an object and pretending to get it wrong, pointing to cat and saying dog) <p>Stage 3a: Opposites – a special case of misnaming</p> <ul style="list-style-type: none"> • A specific form of mislabelling objects and events – deliberately using the opposite of a known term (eg. Ring-a-ring of roses, we all fall <i>up</i>)

Stage 4: Conceptual incongruity (3 to 5 years)

Stage 4a: Playing with word sounds (not meanings)

- Rhyming repetitions (eg. silly, dilly, willy, squilly)
- Altering the sound of a single word in an otherwise normal sentence (eg. I want some more tato-wato-chatos for potatoes)

Stage 4b: Nonsense real word combinations

- Real words put together in nonsensical combinations (eg. I want a peanut butter chair)

Stage 4c: Distortion of features of objects, people or animals

Conceptual incongruities that include:

- Adding features that don't belong (eg. a tree with cakes on it)
- Removing features that do belong (eg. a cat with no legs)
- Changing the shape, size, location, colour, length etc. of familiar things (eg. eyes and ears in reversed place)
- Incongruous or impossible behaviour (eg. a dog playing a piano and singing)

Stage 4d: Gender reversal

- Calling other children by the wrong gender name

Pre riddle stage: transition period (5 to 6 -7 years)

- Involves the 'rote' reproduction of riddles told by others (though not necessarily understood)

Stage 5: Riddles and jokes (double meanings): 6-7 to 10-11 years

- Multiple meanings: ambiguity (in puns); first signs of logic (in riddles)

Examples taken from McGhee 2002

Figure 1 above provides a complete overview of a McGhee's framework of children's humour development but of specific relevance to the present investigation are stages four and five. These two stages span humour

development between the ages of 3-11 and therefore relate to participants in the current study who were aged 6-11. The transition between these two stages has previously been linked with the acquisition of concrete operational skills which are said to contribute to children's developing ability to decode different types of verbal ambiguities. Hence both these stages, and the cognitive skills they involve, are examined in more detail below.

2.4.1 Stage four humour

Children operating within stage four humour are generally viewed as being at a 'preoperational' stage of development (Piaget 1950, Wadsworth 1989) which means that they are capable of conceptual thinking. They are therefore able to understand incongruity-based humour based upon 'violation[s] of conceptual representations' (Bariaud 1989:26) during this humour stage.

There is a strong perceptual orientation in children's thinking during stage four humour which means that objects and events are understood 'primarily on the basis of their appearance' (McGhee 1979:74). Cognitive activity is dominated by perceptual aspects (and evaluations) and children tend to experience, and favour, humour based upon visual incongruities at this point of development. McGhee is therefore led to conclude that children are capable of experiencing incongruity during stage four humour - as long as it is represented in terms of 'visual discrepancies' (McGhee 1971b:135).

Much of the humour enjoyed by children during stage four is therefore based upon the incongruous appearance of things and upon the visual distortion of features and objects. Such incongruities often include the addition of features that don't belong (a tree with cakes on it); the removal of features that do belong (a cat with no legs) and the alteration or exaggeration of the shape, size, location and colour of familiar objects.

A child can only comprehend - and subsequently enjoy- ambiguities of this nature however if he already has a firm conceptual understanding of the

ways things exist in the world of reality. As McGhee points out, it is only prior mastery of a situation that ‘enables a child to recognize when an incongruous event has been substituted for the expected congruous one’ (McGhee 1979:38). Incongruities can thus only really be enjoyed when they are known ‘to be at odds with reality’ (McGhee 1979:61). Once a child is able to recognise that an incongruity is not to be taken seriously, he can then ‘fantasy assimilate’ - as opposed to ‘reality assimilate’ (McGhee 1979) - the incongruity, because he is able to perceive incongruities as existing at an imaginary level. Rather than permanently assimilate the perceived incongruity into existing knowledge, he can instead, in playful mode, temporarily adapt his schema (aware that no permanent change is required) in order to experience humour.

Whilst the child’s strong perceptual bias during stage 4 humour means that he is most likely to favour humour based on visual incongruities, this does not mean that he is unable to enjoy verbally expressed humour per se. He may well enjoy discrete forms of verbally expressed humour – although these are not of the type which depend upon IR interpretations. For example, at this stage he is quite capable of experiencing humour through ‘the invention of nonsense words, enjoyment of rhymed sequences, and laughter when hearing words having unexpected pronunciations as though what was the most important was the distortion of the ‘physical‘ aspect of the word, (ie. its sound and not its meaning)’ (Bariaud 1989:26). The distortion of a known sound thus ‘has the same effect as the distortion of meanings related to a (verbal or non-verbal) sound. In both cases, the child is introducing elements known to be incongruous or inappropriate and it is this playful acknowledgement of their inappropriateness that makes each funny’ (McGhee 1979:130).

Although the child may well enjoy verbally expressed humour based upon distortions of sound(s) at this stage, he still does not appreciate the verbal humour of adults which is based upon ‘sinnspiel’ (play with meanings) as opposed to ‘klangspiel’ (play with sounds) (terms cited in Hempelmann 2004:388). Only when a child makes the transition to stage five humour is

he able to start to engage in the type of verbal humour that involves playing with the meanings of words.

2.4.2 Stage five humour

A child is said to make the transition to stage five humour in line with his advancement to a stage of concrete operational thinking (Piaget 1950, Wadsworth 1989). As he progresses to this stage, his focus on the visual diminishes and he is able to ‘step beyond the appearance of things and begin to think in a logical manner about what could and could not happen, and why’ (McGhee 1979:75). His reduction in perceptual centredness allows him to ‘mentally reconstruct’ (Bariaud 1989:35) successive actions rather than simply focus on end outcomes, and he is able to consider underlying meanings and the relationships between events. Because he is no longer dependent upon visualisation of the physical situation he can now consider logical inconsistencies in depicted events, which in turn makes it easier for him to understand incongruities that are not immediately obvious (McGhee 1979). At this stage then ‘simple violations of logic in behaviour and decision making finally begin to be funny’ (McGhee 1979:141-142).

Of particular significance to this study is the fact a child now begins to understand and appreciate the ambiguous meanings of words in joking texts. He becomes ‘capable of understanding verbal humour based on the double meaning of a word which not only involves the knowledge of both meanings of that word, but also the ability to keep one meaning in mind while shifting to the other’ (Bariaud 1989:35). Findings that validate this claim include those of Prentice and Fathom (1975) and Shultz & Pilon (1973). McGhee (1977a:35) is thus led to conclude that ‘concrete operational thinking enables the child to understand and appreciate forms of verbal humour based on ambiguity of meaning, and to generally perceive humour in more abstract forms of incongruity’.

It should be noted here that ages relating to humour stages and transitions are only approximations. However ‘the sequence of stages is the same for all children: that is, all children exhibit Stage 1 humor before stage 2, Stage

2 before Stage 3, and Stage 3 before Stage 4' (McGhee 1979: 65).

Transition from one stage to another is thus progressive and humour stages overlap as a child's intellectual development advances. Stages do not 'disappear' overnight and certain aspects of humour can be carried on and enjoyed right throughout adolescence and well into adulthood.

2.5 Children's cognitive development within a Piagetian framework

As discussed above, humour development has previously been linked to the acquisition of cognitive skills based within a Piagetian framework (McGhee 1971a, 1971b, 1972, 1977a, 1979, Fowles & Glanz 1977). Within this framework cognitive changes that typically occur around the age of seven are said to contribute to children's developing ability to comprehend ambiguities in verbal riddles

The scope of this study prohibits an in-depth discussion of Piaget's theory of child development but, given the interplay between cognitive development and humour development, a brief summation of the cognitive changes he outlines as occurring around the age of 7 is provided below. Particular reference is made to those changes which are said to contribute to humour development.

2.5.1 Schemata and cognitive changes

Piaget believed children to build cognitive structures called schemata (units of knowledge which store data about objects and events and the ways in which they interrelate) to help them make sense of the world around them. These schemata are altered or adapted each time the child is confronted with new information to allow for the advancement of cognition. As schemata become more numerous and more complex, the child gradually increases his ability to think, reason logically and problem solve. The development of schemata spans a broad continuum which is divided (by Piaget) into four major stages. Progression from each stage to the next is facilitated by qualitatively different reasoning and allows for the integration and extension of existing knowledge and cognition. Approximate ages are provided for each of the four stages but they are subject to individual variation.

Progression throughout the stages is identical to all however and is supported by the child's developing ability to process new information through processes associated with his developing schemata.

Of particular significance to the current study are the changes that occur during the transition from the stage of preoperational thought (aged 2-7) to the stage of concrete operations (aged 7-11). These cognitive changes are said to contribute to children's developing ability to comprehend ambiguities in verbal riddles and include diminishing egocentrism, the ability to decentre and the emergence of transformational reasoning skills.

The first of these cognitive changes, diminishing egocentrism, relates to the child's developing ability to look at situations from different perspectives. Up until this stage a child is said to be egocentric which means that he is unable to see things from any viewpoint other than his own, even when presented with evidence contrary to his own thoughts. Egocentrism 'has a major effect on reactions to humor' (McGhee 1979:78) because it limits the child's ability to look at situations from different viewpoints. As the child's egocentrism starts to diminish, however, he begins to develop an awareness that others might perceive things in different ways and that alternative interpretations other than his own might exist. In terms of his humour comprehension, his diminishing egocentrism enables him to start to consider how words and situations in jokes might be open to more than one interpretation.

Around the same stage as egocentrism begins to diminish, the child also starts to 'decentre'. This means that rather than focusing on a limited perceptual aspect of an object, he now starts to take into account all salient features. His reduction in perceptual centredness allows him 'to consider relationships between events rather than simply focusing on the end states or outcomes of events' (McGhee 1979:78) and contributes to his developing ability to comprehend verbal humour - the basis of which no longer relies upon visual perception(s).

The child's diminishing reliance on perceptual decisions at this stage also allows for the development of his concrete logical thought (Piaget 1950). This type of thought is characterised by the emergence of 'operations co-ordinated among themselves into integrated systems whose most remarkable property, as compared with the intuitive thinking of the young child, is that of being reversible' (Piaget 1968 cited in Fowles & Glanz 1977:450). When a child's thought is reversible, it means that he can follow a line of reasoning back to its origin. This in turn enables him to go back and mentally replay events. As a consequence he is able to start reflecting upon the relationship between beginning, middle and end points. In the context of a joke reversible thinking therefore 'enables a child to go back and forth between several different meanings of key words; and this is precisely what is required for the comprehension of riddles and puns based on double meanings' (McGhee 1979:78).

Diminishing egocentrism, the development of logical thought and the ability to decentre, all of which take place during the transition from preoperational to concrete operational thinking, make contributions to the type of humour that a child is able to understand at a given stage in his humour development. The development of these skills is said to assist a child in progressing from stage 4 humour (during which visual incongruities are favoured) to stage 5 (during which verbal incongruities are favoured) (McGhee 1979, 2002).

Discussion above has focused on the fact that children need to undergo certain cognitive changes in order to be able to understand verbal humour based upon ambiguous use of language. However, it is not only cognitive development that needs to be considered when evaluating a child's ability to comprehend ambiguity-based humour. Type of ambiguity is also said to affect children's proficiency in comprehending jokes based upon dual meanings. Shultz & Horibe's (1974) study on children's understanding of ambiguity in verbal jokes leads them to conclude that 'if the appreciation of verbal jokes relies on the ability to provide resolutions based on the detection of the various kinds of linguistic ambiguity, then the transition to a

stage of resolvable incongruity may depend on the particular type of resolution' (Shultz & Horibe 1974:15). This supports Bariaud's hypothesis that 'some ambiguities are more difficult than others for the child to grasp' (Bariaud 1989:39). Level of difficulty in the current context depends in great part upon the way(s) in which language is manipulated to elicit a humorous effect and is discussed in more detail in section 2.9. Before that however, there are further developmental variables which require consideration - this is an aural/oral investigation and depends in great part upon children's developing oracy skills, namely speaking and listening.

2.6 The development of listening skills

When a child – or indeed an individual of any age - hears a riddle, there is no guarantee it will be understood, even when all the cultural conventions, concepts, sounds and associated meanings are known to the listener.

Hearing a riddle simply means that individual sound waves sent by the riddler have been perceived and that an auditory association has been made. To construct meaning from the perceived sounds, the listener then has to engage in a set of cognitive steps, all of which come under the umbrella term of 'listening'. These cognitive steps do not all develop simultaneously. Different steps are mastered at different developmental stages as an individual's listening skills gradually mature (discussed further below).

The process of listening has often been described as constituting a 'passive' skill (British Council 2017) but this term is misleading. As West & Turner (2010:187) point out, listening is 'the dynamic, transactional process of receiving, responding to, recalling, and rating, stimuli and/or messages from another. When we listen, we are making sense of the message of another communicator. Listening is dynamic because it is an active and ongoing way of demonstrating that you are involved in an interpersonal encounter.' The process of listening thus requires energy, effort and skill, and as a consequence takes years to master effectively (Kline 1996, Buck 2001, Jalongo 2010, Wolvin 2012, Worthington & Fitch-Hauser 2012).

In order to examine the processes involved in listening in more detail, listening can be broken down into five discrete stages: receiving, attending, understanding, remembering and responding (Kline 1996). These stages all occur in sequence – although in such rapid succession that there is little conscious awareness of their having transpired. Each of these five stages is summarised below. It should be noted, however, that whilst the first three stages are all necessary prerequisites for successful listening the latter two, whilst often desirable, are not as essential to the listening process. They are nonetheless discussed here because each of the five stages had to be accommodated in the present investigation in order to assess participants' ability to comprehend riddles based on different types of ambiguity.

Stage 1 - Receiving

This stage of listening relates to the physical response which occurs when sound waves stimulate the sensory receptors of the ear. It is the stage during which words and sounds are received (or 'heard'). This stage begins before the child is even born (Gerhardt & Abrams 2000, Graven & Browne 2008, Worthington & Fitch-Hauser 2012). In the current study this stage involves participants receiving - or 'hearing' - stimuli (verbal riddles) orally delivered by the researcher.

Stage 2 - Attending

As with receiving, the attending stage of listening is said to start developing before birth with skills in sound discrimination accelerating rapidly throughout a child's pre-school years (Siegler, DeLoache & Eisenberg 2011, Saffran, Werker & Werner 2006). During this stage the listener 'attends' to stimuli ie. he gives his attention to the perceived stimuli and discriminates amongst incoming sounds. In the present study this stage involves participants attending to incoming stimuli (orally narrated verbal riddles) in order to discriminate amongst the different sounds perceived so that meanings can subsequently be assigned to individual units.

Stage 3 - Understanding

This is the stage during which meanings are attached to sounds ie. what has been perceived (physically) now becomes understood (cognitively). This stage involves the listener using phonological, lexical, morphological, syntactic and pragmatic knowledge to work out the speaker's intended meaning. This stage of the listening process develops throughout infancy and childhood (Siegler et al 2011, Jalongo 2010) as new knowledge is acquired about the interrelationship between sound(s) and meaning.

In the current investigation the 'understanding' stage of listening involves participants having to attach meanings to sounds to make sense of why they have been used in the context of the riddle. The complexity of this stage is compounded when listening to riddles because words and phrases have more than one meaning. Riddles therefore require listeners to attach more than one meaning to individual sounds and combinations of sounds. This means that listeners have to backtrack and repeat part of the listening process in order to access additional meaning(s). Listeners then have to retain these different meanings whilst mentally shifting from one to the other in order to 'understand' or 'make sense of' the riddle. In essence listeners have to work much harder at 'understanding' riddles based upon the deliberate exploitation of ambiguous language than they do when listening to a developmentally appropriate non-ambiguous text.

Stage 4 - Remembering

This is the stage during which messages are retained and stored in memory (even if only for a brief period of time) in order to facilitate recall. In common with Stage 3, Stage 4 is a complex process which develops throughout infancy and childhood as children's memories progressively develop. In the present investigation the 'remembering' stage of listening involves participants having to retain - at least in working memory - not only a riddle question but also three potential punchlines before choosing a punchline which, when coupled with the interrogative, makes a verbal riddle (see section 3.9.1). Participants therefore have to retain more in working memory than had single original punchlines been provided for them. If

participants find this stage of the listening process difficult, they will subsequently struggle with the final stage ('responding').

Stage 5 - Responding

This is an optional stage (although not in the current study) which involves the listener providing verbal/non-verbal feedback in order to communicate to the speaker that his message has been successfully received and understood.

The responding stage forms an integral part of the present investigation – without 'response' there would be no way of assessing whether or not participants were able to identify or explain ambiguities. Response in this instance is two-fold and involves a multiple choice task and a verbal explanation task (as detailed in section 3.9). The first response format (ambiguity identification) intends to minimise language production demands which might otherwise reduce performance levels and the second response format (verbal punchline justification), whilst placing additional language demands upon participants, affords the researcher insight into *why* punchline choices have been made.

2.7 The development of speaking skills

As reported above, the second response format in the current investigation takes the form of a verbal explanation task. This task requires participants to explain why they have chosen a specific punchline from a choice of three which, when coupled with the interrogative, makes it into a riddle.

Participants are thus required to 'produce' language (ie. to 'explain') in addition to 'processing' (ie. 'understanding') it. The ability to do so (ie. 'produce' language) is generally accepted as lagging behind the ability to 'process' – or 'understand' – language. This discrepancy starts at birth, continues throughout childhood and extends well into adolescence and adulthood. Hence any task which requires productive language skills places extra demands upon participants, especially when they are still in the process of developing linguistically (the implications of this in relation to the current study are discussed further in section 3.9). In order to combat

such demands, children often employ gestures as a communicative tool (Capirci, Montanari & Volterra 1998, Goldin-Meadow 2000, Ozcaliskan & Goldin-Meadow 2005) with which ‘to express ideas that they are not yet able to express in speech’ (Goldin-Meadow & Alibali 2013:263). Gestures not only allow children to communicate ideas they are not yet able to communicate verbally but also serve as a supplementary communicative tool as children’s productive language skills gradually become more advanced.⁸

The way(s) in which children incrementally (and very rapidly) acquire a system of finite sounds and morpho-syntactic rules with which to communicate orally in their native language has to date been documented in numerous textbooks and papers. Phonological and lexical development is seen to precede morphological and syntactic development which in turn precedes discourse and pragmatic development (Kaplan 1998, Goswami 2008, Berger 2011, Hill & Kuczaj 2011, Hoff 2015). Acquisition of the latter skill includes a developing awareness of (and an ability to adapt and interpret) language rules/conventions according to social context - of relevance to the present investigation is the developing awareness that figurative language is not to be taken literally (as in the case of idioms). Whilst accelerated development in each of these areas of language acquisition typically occurs during the pre-school years, children continue (and are expected) to develop these skills throughout their time at primary school and beyond.

The development of speaking and listening (ie. oracy) skills are of specific relevance to the current study since they directly relate to the ability to comprehend, recall and respond to spoken texts. Each of these skills is listed for development in the new statutory Programme of Study for the teaching of English in Wales (Welsh Government 2015b). Findings from the current study will therefore be evaluated in order to determine how best to introduce riddles into the KS2 classroom (depending upon ambiguity type)

⁸ This fact is noted and accommodated within the methodology.

in order to meet current stipulations for the teaching of oracy (chapter 5) as stipulated in the current Programme of Study for the teaching of English in primary schools in Wales.

Prior to this however is an examination of terms central to this study – ‘verbal humour’, ‘riddles’ and ‘puns’ - to which thus far only passing reference has been made.

2.8 Verbal Humour

Humour stimuli can take many forms (funny pictures, cartoon scripts, mimes, practical pranks) but the focus for the current study is verbal humour and the ‘use of language with intent to amuse’ (Chiaro 1992:5). ‘Verbal humour’ (VH) is a term often confused with ‘verbally expressed humour’ (VEH) (Ritchie 2004:224). There is however a clear distinction to be made between the two. Whilst the type of humour tested in the current study is verbally expressed, it also exclusively constitutes verbal humour.

Verbally expressed humour is a general term for any humorous item, such as a joke, which is ‘expressed by the medium of a linguistic system (or its derivatives, like writing)’ (Attardo 1994:96). This definition therefore includes any joke that is delivered through linguistic means, be it orally or in written format since ‘whether it contains a pun or not, by the very nature of its verbalization [it] necessarily plays on language’ (Chiaro 1992:15).

Verbally expressed jokes can consequently quite often be completely ‘independent of linguistic form for their humor’ (Aarons 2012:6). In such instances, the humour is likely to be elicited from the absurd nature of events, characters and/or situations contained within a joke. For example:

‘What’s yellow and jumps up and down?’

‘A banana at a disco’.

Here, the humour derives from the absurdity evoked by the incongruous image of an inanimate everyday object, a banana, dancing energetically at a nightclub. Jokes of this nature, reliant upon conceptual incongruities, have

previously been categorised as being ‘conceptual’ (Freud 1905), ‘referential’ (Attardo 1994) and ‘propositional’ (Ritchie 2004). Although expressed through a linguistic system, they do not rely upon specific properties of language or from the stretching/bending of linguistic rules to elicit humour. They can often be translated into other languages and the humour will remain intact.

In contrast to the above, ‘some jokes are dependent for their humor on the form of language in which they are told’ (Aarons 2012:6). This type of joke has previously been described as being ‘verbal’ (Freud 1905), ‘poetic’ (Hockett 1972), ‘linguistic’ (Ritchie 2004) and as comprising ‘de dicto’ humour by Aarons (2012). Of these different terms, the label ‘verbal humour’ is adopted by the present study. This is because the type of humour to which this term applies is one that depends specifically upon different linguistic properties contained within a joke form itself - ie. it depends upon the wording through which a joke is delivered.

One of the most widely recognised manifestations of verbal humour, and one which is used here to show what verbal humour actually comprises, is punning. Punning (discussed further in section 2.8.1.1) involves the humorous application of words or phrases (ie. puns) which have two different meanings and is realised through the exploitation of ambiguities which are based upon similarity of sound or upon dual meanings. For example:

‘Why did the elephant sit on the tomato?’

‘It wanted to play squash’.

This riddle is verbally expressed, much like the ‘banana’ riddle above. It differs from the banana riddle however in that it also relies upon verbal humour (and upon punning) in order to elicit humour. In this instance the riddle’s humour hinges upon the use of the homonym ‘squash’ which can be interpreted either as a ‘racket sport’ or as meaning ‘crushed’. In order to ‘get’ the riddle, the listener therefore has to be able to access these two

potential meanings which are themselves intrinsically embedded within the linguistic structure of the riddle itself. He can therefore only make sense of the riddle by referring to what Green & Pepicello term 'the code, the formal linguistic structure' (Green & Pepicello 1984:201).

If the words in this joke were altered, and the homonym 'squash' were substituted for a different word such as 'tennis' the joke would no longer operate successfully. This would be because the linguistic phenomenon upon which humour depends (in this instance homonymy) had been removed. In this light the 'squash' riddle, in addition to being 'verbally expressed', is also an example of 'verbal humour' in which language form and structure are manipulated to elicit a humorous response. It is specifically this type of humour which enjoys current popularity and which forms the basis of the present investigation.

Part of the reason for the pre-eminence and popularity of linguistically-based verbal humour stems from the fact that 'language is at each of its several levels a rule based system. And humour . . . thrives on violation of the rules' (Shultz & Robillard 1980:59). The violation of such rules can occur at various linguistic levels (Bariaud 1989) and provides the listener with a deliberate 'verbal communication disturbance' (Attardo & Chabanne 1992:170). In the context of a non-humorous text this type of 'verbal disturbance' may well prove problematic for the listener. In the context of a joke, however, it is both welcome and necessary - and provides the very basis upon which humour is founded.

There can, of course, be no 'verbal communication disturbance' if a listener is unable to recognise broken – or bent – linguistic rules. As Aarons (2012:126) points out 'linguistic jokes are only funny if we perceive a contrast between what we know about language and the way in which language works in the joke'. The identification of 'broken' linguistic rules thus requires a joke listener to possess a certain level of linguistic knowledge and proficiency so that he is able to identify, and make sense of, the types of broken rules contained within any given joke. This needs to be

borne in mind when testing children's verbal humour comprehension. A child's linguistic skills and capabilities differ from those of an adult (and will in turn vary amongst children according to age and general stages of language development). General language development will either enable, or prohibit, children's ability to identify different types of 'broken' language rules (ie. incongruities) which have been manipulated to elicit humour, thereby affecting the types of jokes that they are able to comprehend at different developmental stages.

2.8.1 Riddles

There are many types of modern day verbal jokes – one-liners, riddles, knock-knock jokes, shaggy dog stories – all of which are relatively short texts deliberately designed to stimulate amusement in the listener (Ritchie 2004). Of these different types, it is the riddle format that exclusively forms the basis of this study. This type of joke form abounds in children's humour and an analysis of any contemporary children's joke book will reveal that the question-answer verbal riddle comprises the overwhelming majority of joke forms for this demographic. This corresponds with humour researchers' claims that this is the favourite, and most familiar, joke form for young children (Wolfstein 1954, Zipke 2007, 2008).

Riddles can be split into one of two forms: metaphorical riddles or verbal (or linguistic) riddles. Metaphorical riddles are those which often appear in poetic form, pose a metaphorical puzzle for the reader and require clever thinking to attain a solution whereas verbal riddles take a question/answer format and contain a double/hidden meaning(s) in the form of an ambiguity in their answer. It is the latter type of riddle, that which plays with linguistic form, that forms the stimuli for the current investigation.

Verbal riddles - alternatively named 'conundrum' riddles (Dienhart 1999), 'joking' riddles (Redfern 1984) and 'punning' riddles (Raskin 1985) - specifically rely upon the exploitation of ambiguous words and phrases. As with other forms of verbal jokes, humour arises in this type of riddle 'not [as] a result of the content but rather of the grammatical form of the riddle'

(Green & Pepicello 1979:12). This type of riddle, as outlined in section 1.1, is ‘a linguistic device that makes explicit use of ambiguity for humorous effect’ (Yuill 1998:315). For example:

‘What happened when there was a fight in the fish shop?’

‘Two fish got battered’.

The riddle above pivots on the ambiguous use of the homonym ‘battered’, exploiting its dual meaning of ‘covered in flour and deep-fried until crispy’ and ‘damaged by repeated blows’. The ambiguity upon which the riddle depends for its humour is encoded within the grammar of the riddle (in the form of homonymy) which means that the listener has to have a certain level of knowledge of the English language in order that the riddle be comprehended. If the listener is unaware or incapable of identifying both meanings of the term ‘battered’ the joke is likely to fail and humour will not be experienced.

It is not only knowledge of the English language that listeners need to have acquired in order that such riddles be successfully realised. Listeners also need to be aware that the riddle is structured in a particular way and, when communicated orally, requires more than one participant. One participant assumes the role of riddler (the person who initiates the riddle process) and another the role of riddlee (the person that listens and responds to the riddler). Whilst the role of riddler is limited to one person the number of riddlees can be indeterminate and often varies according to context. Irrespective of numbers however, all participants need to possess a certain level of genre competency (Chiaro 1992). This is because riddles come in ‘prescribed formats’ (Hockett 1972:164) and participants have to follow unspoken interactional rules which depend upon historically and culturally embedded sets of conventions (McDowell 1979). There is a largely pre-determined set of moves that participants need to follow in order that a riddle be successfully realised. These moves can be summarised thus:

1. The riddler provides the riddle interrogative.
2. The listener has the opportunity to provide a solution/answer to the interrogative.
3. The riddler either accepts/rejects the riddle solution/answer.
4. The riddler provides a solution/answer and concludes the riddling exchange.

Although the riddle process is contained within 4 steps in the framework above, there is potential for additional exchanges to succeed step 4. Responses such as ‘I don’t get it’ elicit further discourse as the riddler is called upon to explain the basis for the riddle’s humour. The course of such discourse is less predictable than that outlined in stages 1-4, however, and is unlikely to fall within as tight a formulaic sequence.

As the framework above shows, step 1 of the riddle exchange involves the riddler providing the listener with an interrogative. There is then an opportunity for the listener to provide an answer to the interrogative in step 2 (and possibly again following stage 3). Riddles are thus often viewed as comprising a brief question and answer exchange (Shultz 1974, Green & Pepicello 1979, Chiaro 1992, Binstead & Ritchie 1997, Sherzer 2002) with the set-up occurring in the interrogative and the punchline in the answer. The set-up provides a context in which a deliberately misleading scenario is evoked for the listener and the punchline provides some form of incongruity by evoking a different scenario from that originally implied in the set-up. The listener then has to recontextualise the initial utterance and to ‘search for a resolution in the form of the hidden meaning of the ambiguity’ (Shultz 1976:15). In this way the set-up and punchline of the riddle together establish ‘a link (or ‘bisociation’) between two ‘scripts’ (or ‘frames of reference’)’ (Dienhart 1999:104) and comprise a bi-partite riddle form (Hockett 1972, Lefort 1992).

Although step one in the riddle exchange has been identified (above) as constituting an interrogative form it is not in essence a bona fide interrogative. As Attardo & Chabanne point out, a riddle’s interrogative is

‘not a real question because the locator does not expect an answer beyond the listener’s silence or avowed ignorance . . . the “question answer” joke is a fiction of dialogue’ (Attardo & Chabanne 1992:167). Chiaro (1992:68) agrees: ‘unlike most question and answer routines the riddle is always answered by the person who posed it in the first place’. Questions are thus introduced in a context in which the listener is not expected to be able to provide an answer to the interrogative posed by the riddler.

The fact that the interrogative posed by the riddler is unlikely to be answered by the listener has lead McDowell (1979:31) to describe a riddle as constituting ‘a playful inversion of interrogation.’ McDowell illustrates this process of inversion by citing Leech’s felicity conditions for questions and detailing how these conditions are inverted in the context of a riddle:

Felicity conditions for questions

- a) There is a piece of information (X) of which the questioner is ignorant.
- b) The questioner wants to know (X).
- c) The questioner believes that the addressee knows (X).
- d) The questioner is in a position to elicit (X) from the questionee (Leech 1974: 344).

Felicity conditions for riddles

- a) There is a piece of information (Y) of which the riddler is uniquely possessed.
- b) The riddlee wants to know (Y).
- c) The riddlee believes that the riddler knows (Y).
- d) Riddler countenances riddlee’s attempts to divine (Y).
- e) The riddlee is in a position to elicit (Y) from the riddler. (McDowell 1979:30)

In the above comparison conditions (a) (b) and (c) are all inverted in the riddle exchange - only when (d) is reached is there any overlap in felicity conditions. Even here, the overlap is tenuous given that the riddler does not so much elicit (Y) from the riddler as tolerate his attempt(s) at guessing the

answer. As long as both riddler and listener are aware of the inverted nature of the interrogative act however then the felicity conditions for a successful Speech Act (Austin 1962) are not affected, namely:

- (A.1) ‘There must exist an accepted conventional procedure having a certain conventional effect, that procedure to include the uttering of certain words by certain persons in certain circumstances, and further,
 - (A.2) the particular persons and circumstances in a given case must be appropriate for the invocation of the particular procedure invoked.
 - (B.1) The procedure must be executed by all participants both correctly and
 - (B.2) completely.
 - (C.1) Where, as often, the procedure is designed for use by persons having certain thoughts or feelings, or for the inauguration of certain consequential conduct on the part of any participant, then a person participating in and so invoking the procedure must in fact have those thoughts or feelings, and the participants must intend so to conduct themselves, and further
 - (C.2) must actually so conduct themselves subsequently.’
- (Austin 1962:14-15)

The above analysis has shown that, although apparently uncomplicated, the question-answer riddle is not as straightforward as might be presumed. Any child participating in the riddle exchange needs to have an understanding of participant roles and their implicit rules for turn-taking. He needs to be aware that questions are posed within an inverted framework of the usual interrogative act and that riddles’ punchlines contain incongruities which need resolving in order to make sense of them. In the case of verbal riddles this involves drawing not only upon cultural and conceptual resources, but upon grammatical, linguistic and metalinguistic knowledge as well. Until an individual is able to draw upon such resources, he will be unable to

comprehend the type of punning (discussed below) upon which verbal riddles depend.

2.8.1.1 Puns

The vast majority of riddles use puns in order to create their humorous effect (Hockett 1972, Binstead & Ritchie 1997, Crystal 1998). A pun is generally viewed as ‘the usually humorous use of a word in such a way as to suggest two or more of its meanings or the meaning of another word similar in sound’ (Merriam-Webster Online Dictionary 2017). Hence puns have previously been described as ‘a double helping for the price of one word or phrase’ (Redfern 1996:188), ‘two strings of thought tied together by an acoustic knot’ (Koestler 1964: 65) and ‘a form of speech play in which a word or phrase unexpectedly and simultaneously combines two unrelated meanings’ (Sherzer 2002:29).

Aarons (2012) concurs with the above definitions and draws specific attention to the linguistic nature of puns. She highlights the fact that ‘a pun is the result of a deliberate decision to play with aspects of sound and meaning in language’ (Aarons 2012:73). Puns exploit the fact there are many similarities - or ‘near differences’ - between distinct sounds, words and phrases in English. These similarities and ‘near differences’ depend upon different types of linguistic phenomena (eg. phoneme substitution, the shifting of word boundaries) and can cover a wide spectrum ranging from homophony (sound identity) at one end and the ‘highest tolerable heterophony’ (sound difference) at the other end (Hempelmann 2004:383).

Of all the different forms of puns it is the paradigmatic pun that is exclusively contained within the current study. This type of pun form abounds in verbal riddles and is characterised by Ritchie (2004) as occurring when:

- a) ‘part of the utterance is phonetically similar (perhaps identical) to some other string not present in the utterance;
- b) either the utterance, or the utterance with that other string substituted in, is contextually appropriate;

- c) if the two substrings are identical, then they should be lexically analysable in different ways, and the lexical analysis of the one not in the utterance should either be linked semantically to the context, or should involve grouping together words which are separate within the utterance;
- d) if the two substrings are merely similar, then the unspoken one should form a complete and recognizable linguistic unit (eg. a complete word or an established phrase).’

(Ritchie 2004: 125-126)

In order to comprehend paradigmatic puns of this nature then, listeners require not only a substantial vocabulary but an understanding of syntactical formulae particular to a specific language. Different types of puns test different types of linguistic knowledge and consequently require different levels of linguistic proficiency depending on the language phenomena manipulated.

It is not only linguistic proficiency that is needed to understand puns of this nature however. Puns also require a certain degree of cognitive proficiency in order that they can be made sense of (as earlier discussed in section 2.2.1.5). As Lawler (1989:240) points out ‘Punning is clear evidence, though seemingly trivial in itself, of the existence of some mental process able to span different worlds of reference and maintain control despite a serious threat of confusion. The development of punning permits inferring the effective organization of an additional level of control in the mind.’ Thus to understand a pun is no mean feat, especially for young children who are still in the process of developing both cognitively and linguistically during their time at primary school.

2.9 Ambiguity

Because puns involve the exploitation of two (or more) meanings contained within a single word or phrase, they depend upon ambiguity. This means that they contain language which is fixed in form but open to having its meaning(s) interpreted in more than one way.

Ambiguity is often viewed as an undesirable element in the act of communicative exchanges because it can lead to confusion. This viewpoint might well prove valid in particular contexts such as information texts where ambiguity can obfuscate meaning and detract from the successful communication of serious factual information. In such contexts Ruby (1966:473) refers to ambiguity as constituting ‘an unmitigated evil’. In the context of verbal riddles the opposite can be said to hold true however. Here ambiguity is ‘the essential ingredient’ (McGhee 2004: viii) because ‘deliberate ambiguity will be shown to underlie much, if not all, of verbal humour’ (Raskin 1985: xiii). Hence Goatly (2012:25) describes ambiguity as constituting ‘a critical feature of humour’ and Lew (1996a, 1996b) emphasises the fact that the presence of two interpretations is that which enables a joke to activate a humorous response. Aarons (2012:26) also supports this view, asserting that ‘exploiting ambiguity in the interpretation of illocutionary force is one of the most productive joke-making mechanisms’.

Data to support the conjecture that ambiguity is a central device in verbal jokes is provided by Attardo, Attardo, Baltes & Petray’s (1994) findings which relate to analysis of 2,000 sample printed jokes. Of the 2,000 jokes, 441 were found to be verbal jokes (ie. they depended upon manipulation of language properties) and of these 441 verbal jokes, 98% were ambiguity-based.

Although humour researchers (Raskin 1985, Pepicello 1989, Attardo et al 1994, Lew 1996a, 1996b, Goatly 2012, Aarons 2012) all concur that ambiguity plays a pivotal role in verbal jokes, McGhee (1979) nonetheless points out that it is not ambiguity per se that is humorous. An ambiguity is only ‘funny if one of the meanings were clearly impossible, improbable, inappropriate (under the circumstances), or associated with information giving it an additional connotation’ (McGhee 1979:135).

2.9.1 Ambiguity and the violation of Grice's maxims

Many discussions concerning ambiguity in jokes touch upon the general nature of communicative exchanges and upon the notion of violation of one (or more) of Grice's maxims relating to his co-operative principles (CPs) (formulae to account for co-operative conversational exchanges). Grice's four main maxims comprise those of Quantity (giving the right amount of information), Quality (saying what a speaker knows to be true), Relation (being relevant) and Manner (being clear). Of particular relevance to the joking context is the maxim of Manner which Grice subdivides further:

- Avoid obscurity of expression
- Avoid ambiguity
- Be brief (avoid unnecessary prolixity)
- Be orderly

(Grice 1975:46)

Because the language used in jokes is frequently intentionally ambiguous the sub-maxim of manner, 'avoid ambiguity', is often violated. If this were a real violation however, jokes would not function as co-operative texts - and yet this is not the case. Jokes do function successfully despite their violating (one of) Grice's co-operative maxims. Hence, as Attardo points out, 'if jokes show the coherent organized pattern of intended meaning and received meaning, it follows that they are obeying some cooperative principle' (Attardo 1993:544). He is thus led to conclude that given 'the paradox of the communicative nature of jokes' (Attardo 1993:537) they must in fact follow a co-operative principle - but that it need not necessarily be Grice's. Instead Attardo suggests there might be a specific form of 'humor-CP' which 'can accommodate the original CP but can also allow violations of the CP as long as they are eventually redeemed by an ulterior humorous intent' (Attardo:1994: 286-287). Raskin (1985) also agrees that a specific type of CP must exist in order to account for successful joking exchanges. He highlights the fact that normal input and output conditions do not hold true in the joking context and puts forward a 'non bona fide' (NBF) model of joking communication. In this NBF model the listener,

upon hearing a joke, becomes aware that Grice's maxims have been violated. He then backtracks and re-evaluates his initial 'reading' of the joke to come up with a second alternative 'reading'. This second reading involves the listener discarding his initial bona fide interpretation of the joke text in favour of a non bona fide one which in turn allows the joke to be perceived as constituting a humorous exchange. In other words in order to comprehend a joke a listener must be able to recognise (and be able to) switch to a NBF mode in order that an ambiguity be perceived (and treated as) humorous.

2.9.2 Ambiguity classification

Ambiguity, as discussed above, is a general concept and as Yuill (1998:315) points out, 'riddles involve language ambiguity at different levels of language'. Researchers have attempted to differentiate between different types of verbal ambiguity by examining the underlying properties of language used and the arrangement of specific words and phrases (Pepicello 1980, Pepicello & Green 1984, Chiaro 1992, Lew 1996a, 1996b, 1997, Oaks 1994, Dubinsky & Holcomb 2011, Aarons 2012). Ambiguity categorisation is diverse, however, with scholars distinguishing numerous different categories and sub-categories of ambiguity, the scope of which is too far-reaching to be fully analysed within the parameters of this study. The types of ambiguity discussed herein (lexical, phonological, morphological, syntactic, idiomatic) have therefore been elected using the following criteria:

- They relate to categorisations and findings in previous studies on children's humour development.
- They relate to categories of ambiguity which are developmentally appropriate (ie. have been shown to be comprehended by children at different developmental stages within the age range participating in the study (Shultz & Pilon 1973, Shultz & Horibe 1974, Fowles & Glanz 1977, Hirsh-Pasek et al 1978, Yuill 1998).
- They correspond with the types of ambiguity found in contemporary children's riddles.

- They relate to descriptions contained within previous literacy curricula ranging from the National Literacy Strategy (Department for Education and Employment 1998) to the present day Curriculum for Wales (Welsh Government 2015b, 2015c).

The reduction of categories for analysis does not necessarily simplify ambiguity classification. Categorisation is a contentious issue and inconsistencies both regarding interpretations of categories and definitions of terms abound, which makes any comparable analysis of previous findings particularly problematic. For example, the popular riddle ‘What’s black and white and *red/read* all over?’ ‘A newspaper’ has been interpreted as being *morphologically* ambiguous by Green and Pepicello (1984), *lexically* ambiguous by Yuill & Oakhill (1991) but is cited as having *phonetic* ambiguity at its core by Ben-Amos (1976). Were Lew (1996a, 1997) to apply his criteria to this particular riddle, it is likely he would interpret it as relying on none of these categories but on that of *syntactic class* (Lew 1997: 6). Such inconsistencies are discussed further below in relation to the five ambiguity types (lexical, phonological, morphological, syntactic and idiomatic) included in this study.

2.9.3 Lexical ambiguity

Lexical ambiguity has been used to test children’s humour development in studies by Shultz 1974, Shultz & Horibe 1974, Brodinsky 1977, Fowles & Glanz 1977, Hirsh-Pasek et al 1978, Yuill 1998 and Zipke 2007. The popularity of this categorisation may lie in the fact that the majority of the 1,000 most common words in English are multiply ambiguous (Cairns 1999 cited in Zipke 2008:2). Hence lexically ambiguous jokes are said to form the most frequent single category of linguistic jokes (Attardo et al 1994).⁹

Lexical ambiguity has previously been interpreted in a similar way by both Oaks and Crystal. Oaks views it as occurring when there is ‘a word with

⁹ Although it should be noted that Attardo et al include in this category ambiguities that contain ‘phonetic difference’ in addition to ‘identical phonetic construction’.

more than one possible meaning in a context' (Oaks 1994: 378) and Crystal describes it as deriving 'solely [from] the alternative meanings of an individual lexical item' (Crystal 2008: 23). These are both rather broad definitions however and could be said to relate to ambiguity types other than lexical ambiguity. Zipke (2007:382) consequently attempts to refine this definition further by stating that lexical ambiguity occurs when a 'word has more than one meaning without a class violation' - (class violations are discussed more fully in section 2.9.6). She highlights the fact that this type of ambiguity does not depend upon grammatical analysis of the sentence but solely upon two different meanings that have the same word form.

The fact that lexical ambiguity depends upon two different meanings having the same word form means that it is not uncommon for lexical ambiguity to be viewed as encompassing one (or any combination) of three closely-related types of wordplay: homonymy, homophony and polysemy, each of which is briefly outlined below.

2.9.3.1 Homonymy

Homonymy occurs when a word exists which is either spelt like another word or pronounced like another word, but which has a different meaning. Homonymy can include:

- a) **Homophones** - words with different spellings that have the same (or very similar) pronunciation(s) but different meanings
and
- b) **Homographs** - words which have the same spelling but different pronunciation and different meanings.

Although homonymy allows for differences in both phonological realisation(s) and orthographical representation(s), it is often interpreted in a much narrower sense to include only those words which have identical orthographical representation(s), identical pronunciation(s) and two unrelated meanings. For example:

‘What fruit do you find on coins?’

‘Dates’.

Here the ambiguity depends upon the single form ‘dates’ being interpreted in two ways as both ‘points in time’ and ‘a type of fruit’. The two meanings of the word ‘date’ share the same phonological and graphological form but these two meanings are not perceived as being related in any way. Identity of phonological and graphological form(s) seems to be coincidental rather than intentional or derivational.

2.9.3.2 Homophony

Homophony is a specific form of homonymy which occurs when two words share the same phonological form - ie. they sound the same (or very similar) but have different graphological forms (ie. are spelt differently) and different meanings. For example:

‘What did the grape say when the elephant trod on it?’

‘It just gave out a little wine/whine’.

Here the ambiguity lies in the lexical item ‘wine’ (‘alcoholic beverage made from grapes’) which needs to be reinterpreted by the lexical item ‘whine’ (‘a yelp communicating distress’) in order for the incongruity to be resolved. Both words are pronounced in the same way despite differences in graphological form and meaning.

2.9.3.3 Polysemy

Polysemy is a concept closely related to homonymy. It occurs when a single word (or lexeme) has the same phonological representation and the same graphological representation but two (or more) meanings. Unlike homonymy however, polysemy involves two identical word forms sharing the same etymons and bearing a semantic/cognitive relationship. In other words the two identically written, and pronounced, words are said to be related to each other to such an extent that do in fact comprise the *same* word (or lexeme) eg. *wood* (a natural material) and *wood* (area of land

covered with trees). Polysemous relationships are said to stem from different types of historically or psychologically established associations (Leech 1974) but the ‘relationships’ they bear can sometimes be so tenuous that it is often difficult to distinguish whether one is dealing with homonymy or polysemy (Chiaro 1992, Dubinsky & Holcomb 2011:52).

Although the distinction between individual homonyms and polysemes can provoke debate, it is not one that should deter the humour researcher. As Blake (2007:69) points out, ‘whether it is a matter of two separate roots happening to be pronounced alike or a particular word developing different meanings, the result is the same: one form has more than one meaning’. Hence, in practical terms, it makes little difference to the listener of an orally narrated verbal riddle whether the ambiguity depends upon homonyms (including homophones) or polysemes. Their form, terminology, definitions and derivations may well differ but all perform a similar role in the context of the orally narrated verbal riddle. Each involves a single phonological form having two (or possibly more) meanings - which means that all three forms operate, and are treated by the listener, as one and the same. In each instance ambiguity arises not from differences in graphological representation or etymology (which remain unseen) but from the fact that two different meanings are contained within a single identical phonological representation. Listeners, especially young children, are likely to be unaware of the terminology related to these three concepts (or of the differences between them) but this need not necessarily affect their ability to identify (and resolve) ambiguities based upon them.¹⁰ In this light homonyms, homophones and polysemes are all accommodated in the category of lexical ambiguity in the present investigation (see section 3.8.1 for full definitions of all ambiguity types).

¹⁰ Although claims have been made regarding differences in storage, access and processing of homonyms and polysemes as multiple and single entries respectively in the mental lexicon (Beretta, Fiorentino & Poeppel 2005, Klepousniotou 2002, Klepousniotou & Baum 2007, Klepousniotou, Pike, Steinhauer & Gracco 2012), reported findings are for adults rather than for children (who form the basis of the current investigation).

It should be noted that not all researchers interpret 'lexical ambiguity' in this way. Shultz & Pilon (1973) interpret the term in a much narrower sense. Although they make the initial statement that lexical ambiguity 'occurs when a given lexical item has more than one semantic interpretation' (1973:728), they later restrict this to cases of 'polysemy'. They include 'he goes to the bank' (river or financial) in the category of lexical ambiguity but opt to classify 'he saw three pears (pairs)' as constituting phonological ambiguity - despite the two words having identical phonological representations when orally delivered.

Other studies do not allow for a discrete category of lexical ambiguity at all but include this type of ambiguity in a different category altogether. For example Pepicello (1980) and Green & Pepicello (1979, 1984) place this type of phenomenon (eg. 'What turns but never moves?' 'Milk') - in a sub-category of phonological ambiguity – as discussed further below.

2.9.4 Phonological ambiguity

Phonological ambiguity occurs when the phonological system of English is manipulated in order to produce a humorous effect. It occurs when sounds are modified so that words, are made to sound like other words. The modification of sounds often involves paraphony (near homophones) which 'forces bisociation on the basis of forms that are similar rather than identical in sound' (Dienhart 1999:123). When paraphony occurs the joke-teller usually provides only one script 'but standing as close as it does to a script shared by speakers sharing the same culture . . . it mentally creates the second script as a kind of echo' (Dienhart 1999:123).

There has been prior debate as to whether or not phonological ambiguity constitutes a standalone category of ambiguity. Pepicello (1980), Green & Pepicello (1979, 1984) and Binstead & Ritchie (1997) all believe that phonological ambiguity merits a category of its own. Likewise, Shultz & Pilon (1973), Shultz (1974), Shultz & Horibe (1974), Brodinsky (1977) and Hirsh-Pasek et al (1978) have all used phonological ambiguity as a discrete category with which to test children's humour comprehension.

Fowles & Glanz (1977) and Yuill (1998) choose not to use phonological¹¹ ambiguity as a stand-alone category with which to test children's humour development however and Lew (1997), rather than assigning it a category of its own, regards phonological distortion instead as a 'device' which cuts across, and interplays with, a range of other more easily distinguishable discrete types of ambiguity.

Although Lew does not view phonological ambiguity as a standalone category he nonetheless makes reference to what he terms the 'phonological joke', this being any joke which has 'two typically different phonetic strings [to be] jointly served by one phonetic form, which may be identical with one of the two, but it may also bridge the gap between the two by combining some elements of the two' (Lew 1997:9). This definition of a 'phonological joke' is in essence similar to Hirsh-Pasek et al's (1978:115) description of 'phonological ambiguity' which they see as occurring 'when two similar phonetic sequences (which differ only in a single phonological segment) identify two separate words, which have different meanings'. Lew himself (1996a) acknowledges the similarity of the two definitions, although he does query the 'single segment' difference limit. Although both descriptions embody similar interpretations of phonological ambiguity, Hirsh-Pasek et al (1978) endorse it as a stand-alone category whereas Lew (1996a, 1997) does not.

Debate about phonological ambiguity centres not only upon whether or not it merits a stand-alone category but also upon the way in which it is interpreted. Interpretations (and application) of phonological ambiguity vary both across and within studies. For example, Green & Pepicello (1984:195) provide the following riddle as an example of phonological ambiguity:

'What turns but never moves?'

'Milk.'

¹¹ Although Yuill does use a category which she terms 'morphophonological'.

Both Pepicello (1980) and Green & Pepicello (1979, 1984) classify this riddle as being phonologically ambiguous because ‘the basic strategy employed at the phonological level is simple lexical ambiguity . . . [whereby] different underlying semantic elements have an identical surface form’ (Green & Pepicello 1984:194-195). There is however no modification of sound(s) in this example, nor in the definition of phonological ambiguity they provide. This in turn contrasts with the other examples they use to exemplify phonological ambiguity – namely minimal pairs and metathesis – both of which rely upon manipulation of sounds (Green & Pepicello 1984).

Further irregularities are to be found in the studies of Shultz & Pilon (1973) and Shultz & Horibe (1974), both of whom claim phonological ambiguity to occur ‘when a given phonological sequence can be interpreted in more than one way’ (Shultz & Pilon 1973:728, Shultz & Horibe 1974:14). They give as examples:

- ambiguities arising from homophony (pear/pair)
- ambiguities arising from confusion about the boundaries between words (eighty cups/eight tea cups)
- ambiguities arising from sound differences (line/lion)
(Shultz & Pilon 1973)

Although it is only the latter that involves the modification of sounds (in terms of phoneme alteration), Shultz & Horibe nonetheless argue that all three examples constitute phonological ambiguity. They justify the inclusion of homophony (ie. pear/pair) because of ‘similar pronunciations’ (despite the fact that most native speakers of British English would pronounce ‘pear’ and ‘pair’ in an identical - as opposed to a ‘similar’-fashion) and include ‘eighty cups/eight tea cups’ in the category of phonological ambiguity because it constitutes ‘a confusion about the boundaries between words’ (Shultz & Pilon 1973:728). Whilst word boundaries are themselves admittedly affected by juncture and word stress (both themselves phonological phenomena) ambiguities relying upon differences in word boundaries are generally included in the category of

morphological ambiguity (see section 2.9.5). Shultz & Pilons' lack of consistency as to what actually constitutes phonological ambiguity means that it is difficult for the researcher to determine precisely what the above examples all have in common.

There are similar inconsistencies in the study of Binstead & Ritchie (1997) who describe phonological ambiguity in terms of metathesis, syllable substitution and word substitution. The examples they provide of metathesis and syllable substitution all include the manipulation of sounds (through phoneme substitution), yet only one of the three examples they provide for word substitutions relies upon sound manipulation, the other two examples relying upon homophony and homonymy. Binstead & Ritchie nonetheless justify all their examples as constituting phonological ambiguity by claiming that 'a word can be confused with: an alternate meaning ('blue', the color with 'blue', the mood); a word spelled differently but sounding the same ('carats' with 'carrots'); or a word that sounds slightly different as in: 'Where elves go to get fit? Elf farms' (Binstead and Ritchie 1997:32).

It is thus evident that phonological ambiguity is interpreted in a wide range of ways. Some scholars view it as an additional feature which cuts across other discrete categories of ambiguity and do not believe it to warrant an independent category of its own. Others view it as a stand-alone category but define it in different ways, assigning it different values and sub-values. It was decided in the current investigation that phonological ambiguity be treated as a stand-alone category. This was because of the high percentage of riddles in contemporary circulation which involve the manipulation of sounds. Phonological ambiguity here is viewed as involving the modification of sounds through addition, deletion or substitution of phonemes (see section 3.8.1 for full definitions of all ambiguity types).

2.9.5 Morphological ambiguity

Morphological ambiguity arises from confusion regarding the perception of word boundaries. Ordinarily, in everyday oral communication, strings of sounds perceived by a listener are divided into units to which meaning(s)

are assigned. Sometimes the listener perceives units of sounds in a different way from that originally intended by the speaker however. Whilst this can lead to misunderstanding in bona fide communicative exchanges, in joking it can lead to humour. For example:

‘What bird is low in spirits?’

‘A bluebird’.

Here the original reading of ‘bluebird’ is taken to mean ‘a small North American bird that is mostly blue’. In order to make sense of this incongruous answer however an alternative reading needs to be accessed. This alternative reading can only be accessed by rearranging word boundaries so that ‘bluebird’ is instead interpreted as ‘blue bird’ meaning a ‘sad bird’.

Many riddles deliberately exploit the potential for this type of mis-parsing. They present the listener with context(s) containing groups of sounds that can be arranged in different ways to allow for alternative morphological interpretations. This type of ambiguity is best delivered orally since the written form is likely to bias one interpretation over another.

Very often the (re)arrangement of word boundaries in morphologically ambiguous riddles also involves phonological ambiguity (in terms of phoneme substitution) to provide two different readings. For example:

‘What did the policeman say to the spider when it ran down his back?’

‘You’re under a vest’.

Here word boundaries have been rearranged to provide two different readings - both ‘under arrest’ and ‘under a vest’. In addition to the alteration of word boundaries, sounds have also been altered to provide two different readings, namely /ə'rest/ and /ə vest/.

The fact that morphological ambiguity often includes phonological distortion means that it is often difficult to isolate (and therefore test). This was a prerequisite in the current study however. Hence, for current purposes, morphological ambiguity is restricted to instances where word boundaries are altered, but, other than stress or juncture (see sections 4.2.5.1.2 and 4.2.5.1.3), the sounds remain unaltered.

Morphological ambiguity has previously been treated as a stand-alone category of ambiguity by Pepicello (1980), and Pepicello & Green (1984). It has been used by Hirsh-Pasek et al (1978) and Yuill (1998) to research children's humour comprehension – although they term it 'morpheme boundary' and 'word compound' ambiguity respectively. Other researchers choose not to refer to morphological ambiguity but still discuss the phenomena it embodies by relating it to different classes of ambiguity altogether (Shultz & Pilon 1973, Lew 1996a).

For Hirsh-Pasek et al (1978:116) morphological ambiguity occurs 'when a polysyllable can be interpreted as a single morpheme or as a sequence of morphemes'. This is in keeping with elements of Pepicello's (1989) and Green & Pepicello's (1984) interpretation of morphological ambiguity which they subdivide into four sub-categories, some of which involve the rearrangement of word boundaries ('What bow can you never tie?' 'A rainbow') and some of which do not ('What's black and white and read/red all over?' 'A newspaper'). Pepicello claims that the latter riddle exemplifies morphological ambiguity on the basis that 'the verb *read* plus its past-participle morpheme are homophonous with the simple adjective *red*' (Pepicello 1989:208). The focus on irregular inflectional morphology does not in any way allude to the rearrangement of word boundaries however - unlike the other three sub-categories he provides.

To conclude, much like other ambiguity types discussed thus far, morphological ambiguity has been interpreted in a range of different ways both within and across studies. It is treated as a stand-alone category by some but not by others and sometimes the phenomena it involves are

included in another category of ambiguity altogether. In the current study morphological ambiguity is treated as a stand-alone category. This type of ambiguity is viewed as involving the manipulation of word boundaries but does not involve the modification of phonemes (see section 3.8.1 for full definitions of all ambiguity types).

2.9.6 Syntactic ambiguity

Syntactic ambiguity lies not in individual lexical items but in the ways in which entire phrases or sentences are structurally perceived. It occurs when two sentences look the same (by virtue of identical word order) but can be interpreted in different ways depending upon the syntactic representations perceived by the listener.

Given the tight link between lexicon and syntax, syntactic ambiguity nearly always involves a certain degree of lexical ambiguity. This is perhaps inevitable given that individual lexical items carry the semantic information required for different syntactic constructions. There is a notable difference between lexical and syntactical ambiguity, however. Words (and meanings) dependent upon lexical ambiguity have identical syntactical representations whereas words and meanings dependent upon syntactic ambiguity do not. In order to be syntactically ambiguous then, a word needs not only to contain two or more meanings, but two or more different grammatical interpretations.

Syntactic ambiguity is widely recognised in humour studies, with various sub-categories being routinely listed. For Shultz & Pilon (1973), Shultz (1974), Shultz & Horibe (1974), Fowles & Glanz (1977), Brodinsky (1977) and Zipke (2007) the major two sub-categories comprise '*surface structure ambiguity*' and '*deep structure ambiguity*'. Hirsh-Pasek et al (1978) use the former term and also refer to '*underlying structure*' ambiguity. Green & Pepicello (1979) allude to '*syntactic processes*' and discuss this concept further in a subsequent paper (1984). Yuill (1998) also makes reference to '*syntactic*' ambiguity although she provides us with no definition of what this might comprise. Lew (1996a, 1997) is more specific and discusses

jokes dependent upon this type of ambiguity as ‘*syntactic function*’ and ‘*syntactic class*’ jokes. Others prefer to discuss the phenomena this type of ambiguity embodies under the heading of ‘*structural ambiguity*’ (Oaks 1994, Dubinsky & Holcomb 2011) and provide further sub-categories of their own.

Although there is variation in the terminology used to discuss syntactic ambiguity, it is nonetheless generally agreed that it comprises two major sub-divisions. These two sub-divisions are most commonly, though not exclusively, referred to as ‘surface structure ambiguity’ and ‘deep structure ambiguity’, and relate to structures put forward by Chomsky (1965) in his theory of transformational grammar. Of these two types, it is that which is frequently referred to as constituting ‘deep structure’ or ‘class’ ambiguity, that is tested in the current study and which is consequently examined in more detail below.

Deep structure ambiguity occurs when two deep (syntactic) structures have a single surface structure. The two different syntactic representations reflect different underlying grammatical relations between lexical items. Hence this type of ambiguity relies upon grammatical analysis at whole phrase, clause or sentence level.

Both Crystal (2008) and Hirsh-Pasek et al (1978) make reference to the transformational nature of deep structure ambiguity. The former (2008:22) labels this ambiguity type ‘transformational ambiguity’ whilst the latter describes it as occurring ‘when a single sequence of words has two transformational sources, or two case labelings, identifying different sentential meanings’ (Hirsh-Pasek et al 1978:116). Shultz & Pilon (1973), Fowles & Glanz (1977), Brodinsky (1977) and Zipke (2007) all interpret this ambiguity type in a similar way with Brodinsky (1977:961) referring to riddles dependent upon this type of ambiguity as being worded in such a way that they ‘have more than one underlying logical relation’.

In a similar vein Lew (1997:6) opts to label this type of ambiguity ‘syntactic class’. He explains that jokes based on this type of ambiguity ‘exhibit two readings corresponding to two different syntactic representations, within which a fragment of the text may be assigned two different syntactic class structures, and this fact underlies the difference in the two readings’. Oaks (1994:378) also makes use of the term ‘class ambiguity’ (citing Stageberg) and refers to what he terms ‘ambiguity enablers’ which help exploit this type of ambiguity. He justifies his use of the term ‘class’ because ‘this type of ambiguity gets its name because it creates a confusion between the traditional classes or parts of speech (such as nouns, verbs, adjectives, and so forth)’ (Oaks: 1994:378). For example:

‘How was the blind carpenter able to see?’

‘He picked up his hammer and saw.’

The incongruity above lies in the lexical item ‘saw’ but it is more than a simple case of lexical ambiguity relying upon the homonymous interpretation of the word ‘saw’ meaning ‘tool for cutting’ and ‘was able to see’. At a deeper level the syntactic ambiguity arises from the fact that the word ‘saw’ can be interpreted as either comprising a noun (the former) or a past tense predicate (the latter). In this light syntactic ambiguity is interpreted in the current investigation as occurring when there is a change in word class for the two different readings of an ambiguous word contained within a riddle’s punchline (see section 3.8.1 for full definitions of all ambiguity types).

2.9.7 Idiomatic ambiguity

A cursory glance at children’s riddles as they appear in contemporary joke books will reveal that many of them contain some form of idiomatic ambiguity in their punchlines. This type of ambiguity relies upon incongruities which arise when the conventionalised figurative meaning of an idiom is confused with the literal meanings of its individual lexical components. Since an idiom constitutes a phrase whose meaning cannot be determined from its individual component parts, this type of ambiguity

demands a specific type of linguistic knowledge. A listener needs to be able to recognize both literal and idiomatic senses of a conventionalised fixed expression. For example:

‘How much did the pirate pay for his peg leg and sharp hook?’

‘An arm and a leg.’

Here the listener needs not only to know that a peg leg and a sharp hook are traditionally recognised as being substitutes for the missing limbs, ‘legs’ and ‘arms’ (for pirates in particular), but that the fixed phrase ‘an arm and a leg’ means ‘a substantial amount of money’ in idiomatic English.

Despite there being a substantial number of riddles which rely upon idiomatic ambiguity, this type of ambiguity has received little discussion as a distinct category of its own in the past. Green & Pepicello (1984) list this type of language phenomenon as being syntactic whereas Binstead & Ritchie (1997:33) claim it to be phonological if it involves a ‘confused word [which] is often part of a common phrase’. Lew (1996a, 1997) on the other hand views idiomatic ambiguity as occurring in what he terms ‘lexical jokes’. He includes idiomatic ambiguity in the sub-category ‘lexicalization of a larger unit (lexico-syntactic)’ and refers to it as involving the ‘decomposition of idioms’. Likewise, Partington (2006:119) categorises this type of ambiguity as a form of ‘relexicalisation’ describing it as ‘one of the fundamental linguistic process [sic] underlying many forms of phraseplay’. He describes relexicalisation as including all types of semi pre-constructed phrases ‘of practically any sort, from proverbs and sayings to quotations, idioms, even simple common collocations’ (Partington 2006:119).

Whilst researchers often fail to address the issue of idiomatic competence, they nonetheless include stimuli reliant upon this ambiguity type in their studies. For example, Fowles & Glanz (1977:446) include riddles reliant upon idiomatic ambiguity in the category of lexical ambiguity (‘Why didn’t the skeleton cross the road?’ ‘It didn’t have the guts’) whereas Shultz &

Pilon (1973:730) treat ambiguous sentences of this nature as being phonologically ambiguous ('He stepped over the lion/line).'

Although riddles dependent upon idiomatic ambiguity have been included in other categories in previous studies, it was decided in the present investigation to give idiomatic ambiguity independent classification. This is because idiomatic ambiguity depends on a very specific type of knowledge, one that is different from the focus of the other types of ambiguity tested in the study (see section 3.8.1 for full definitions of all ambiguity types).

2.9.8 Multiple types of ambiguity

Discussion above has highlighted the fact that discrete types of categories have been defined in varying ways by previous researchers. Different interpretations have often 'overlapped' in terms of the linguistic phenomena they are seen to embody. This issue has no doubt been compounded by the fact that different types of ambiguity often operate simultaneously in order to provide an incongruous punchline. For example:

'What happened to the snake with a cold?'

'She adder viper nose'.

In this example there is more than one type of ambiguity at work. The punchline thus relies upon multiple interdependent ambiguity for its incongruity. Phonological ambiguity (in terms of phoneme substitution), morphological ambiguity (in terms of differing word boundaries) and syntactical ambiguity (in terms of words assigned different syntactical classes) all interplay in order to provide two different readings of the riddle text. This type of ambiguity interplay is discussed in some detail by Aarons (2012:149) - who terms it 'multicategorality' - and also by Binstead and Ritchie (1997) and Lew (1996a).

Although several types of ambiguity often operate simultaneously in this way, Binstead & Ritchie (1997:31) believe that 'it is relatively straightforward to divide the bulk of question-answer riddles according to

the primary level of ambiguity they use'. This is not necessarily as straightforward as it might seem however and is often subjective. Hence the present study excludes riddles that are overtly dependent upon more than one ambiguity type.

2.9.9 Discrepancies in ambiguity classifications

As highlighted above, ambiguity classifications have varied in previous studies. Criteria for classification(s) are sparse and even when published umbrella terms have been used to describe individual ambiguity types, these terms have been interpreted and applied in widely varying ways by researchers. This has sometimes lead to the same phenomena being classified as comprising different types of ambiguity and different phenomena as comprising the same type of ambiguity. Even when agreement exists as to which type of phenomenon a certain term might embody, it does not necessarily guarantee that it will be applied consistently in the selection of stimuli. The lack of consistency in the interpretation of different types of ambiguity means that it is difficult to compare prior findings because of:

- inconsistencies in the types of categorisations routinely used to research children's development in detecting different types of ambiguity
- lack of definitions and inconsistencies in the interpretation of individual categorisations
- inconsistencies in the application of categorisations (ie. stimuli used do not match the definitions given by researchers).

In order to reduce inconsistencies and to eliminate confusion regarding categorisation(s), precise definitions are needed for individual ambiguity types based upon the language phenomena they embody. Definitions have either been absent, or else loosely interpreted, in previous studies. This has led to claims being made about the different ambiguity types children are

able to comprehend at different developmental stages when in fact the language phenomena contained within the stimuli do not actually relate to the type of ambiguity purportedly tested (see above discussion). This in turn casts doubt upon the validity of claims made by previous researchers. For example, Shultz & Pilon(1973) report that children find phonological ambiguities easiest to detect even though some of the stimuli they use to test this ambiguity type depend upon homophony and the shifting of word boundaries rather than upon sound distortion(s) and the manipulation of phonemes.

In order that identifiable trends in children's ambiguity comprehension be validated there needs to be more precision regarding the language phenomena each ambiguity types constitutes. I have already highlighted the fact that the current investigation aims to address this issue by analysing the different types of linguistic phenomena discrete ambiguity types constitute and providing concise definitions for five discrete types of ambiguity (lexical, phonological, morphological, syntactic and idiomatic). Potential overlap in linguistic phenomena will be eliminated as much as possible to allow the researcher (both current and future) to be sure of the ambiguity type being tested at any given time. This will in turn allow for the identification of trends in ambiguity comprehension for pupils entering the latter stage of humour development (stage 5). Outcomes can subsequently be used to inform educators of the order in which different types of riddles (based upon ambiguity type) are comprehended by children and can be directly linked to statutory stipulations in the National Curriculum for the teaching of English in Wales. Teachers are currently required to provide opportunities across Key Stage 2 (KS2) for children to engage with texts including 'humour' and 'wordplay' (Welsh Government 2015b) but there is no guidance as to which types of humour might be most developmentally appropriate for children of different ages across Year Groups. Findings from the current investigation can be used to address this gap by identifying the types of ambiguity-based verbal riddles most developmentally appropriate for use across Year Groups. Outcomes will also be linked to the statutory learning experiences and to the development of skills for oracy

across Key Stage 2 as detailed in the current curriculum for Wales (discussed below).

2.10 The national curriculum in Wales

Thus far reference has been made as to how findings can be used to meet statutory national curriculum requirements for the teaching of oracy, but little information has been provided as regards what the national curriculum actually comprises. An overview is therefore provided below in order to contextualise the curriculum to which findings will be applied in Chapter 5.

The national curriculum in England and Wales comprises ‘a set of subjects and standards used by primary and secondary schools so children learn the same things. It covers what subjects are taught and the standards children should reach in each subject’ (<https://www.gov.uk/national-curriculum/overview>). The first national curriculum was introduced in England and Wales in 1989 as part of the Education Reform Act (1988) and was organised into four blocks of years labelled Key Stages (KSs), at the end of which children were formally assessed (Parliament 2009). Following devolution in Wales a new national curriculum was introduced. Key Stages 2, 3 and 4 were all retained but Key Stage 1 was subsequently combined with Early Years education to form the Foundation Phase (aged 3-7).

There have been many reviews of the primary curriculum since its original inception but none have resulted in such radical reform as the one recently proposed by Professor Graham Donaldson in his 2015 ‘Successful Futures’ Report. This report recommended a new curriculum for Wales to include:

- **Four key purposes** (developing: ambitious capable learners; enterprising, creative contributors; ethical, informed citizens; healthy, confident individuals)
- **Six areas of learning and experience** (expressive arts; health and well-being; humanities; languages, literacy and communications; mathematics and numeracy; science and technology)

- **Three cross-curriculum responsibilities** (literacy, numeracy and digital competence)
- **Five progression steps** to replace key stages.

Parts of the new curriculum are currently being phased into schools – although a complete curriculum will not be available until September 2018 and will only be fully implemented in schools by September 2021. In the interim, and of specific relevance to the current study, a new Programme of Study (PoS) for English has been introduced in English-medium primary schools in Wales. This PoS became statutory in 2015 and sets out what is to be taught to children in terms of Oracy, Reading and Writing across the Foundation Phase (aged 3-7) and across Key Stage 2 (aged 7-11).¹² Of particular note are the stipulations for the teaching of oracy since these are the ones to which findings from the current study can be applied.

The current PoS complies with Donaldson’s recommendation in that it is far less prescriptive than previous curricula in terms of content to be taught. It focuses instead upon inputs that children should receive and upon expected outcomes for learning. Inputs are detailed in terms of ‘learning experiences’ and expected outcomes in terms of ‘skills development’, both of which are discussed more fully in chapter 5. Outcomes from the present study will subsequently be discussed in relation to how they can be applied to meet requisite requirements for the statutory provision of ‘learning experiences’ and the development of oracy skills across KS2.

2.11 Concluding Comments

This chapter has reviewed the relevant literature pertaining to this study. It has examined the cognitive nature of the Incongruity Resolution (IR) Theory of humour and has explained why this particular theory was chosen as a framework within which to test children’s understanding of different ambiguity types. It has highlighted the fact that the IR theory is based upon

¹² Although recommendations have been made that Key Stages be replaced by ‘progression steps’, stipulations for the teaching of English to children aged 7-11 are still listed in the PoS under the heading ‘Key Stage 2.’

comprehension and has shown it to comprise two discrete stages which include (1) the identification and (2) the resolution of an incongruity (an incongruity being an inconsistency between what is expected and what is perceived by the listener).

Discussion has focused on the fact that the ability to identify and resolve incongruities in verbal humour has traditionally been linked to certain cognitive changes that a child typically undergoes around the age of seven - such as diminishing egocentrism, decentration and transformational reasoning (within a Piagetian framework). Each of these cognitive changes has been examined in relation to their contribution to a child's developing ability to comprehend verbal humour and a parallel has been drawn between the realisation of these skills and children's transition to the final stage of humour development (within McGhee's five-step framework), during which they first start to understand ambiguity-based humour.

Consideration has been given to the fact that the current study is an aural/oral one and consequently children's oral skills, both speaking and listening, have been examined in terms of their sequential acquisition. The fact that the receptive language skills (inherent in listening) precede productive skills (inherent in speaking) has been highlighted, and is a factor that will now need further consideration in order to be accommodated within the design of this study (see chapter 3).

The chapter has subsequently clarified terms commonly used throughout the study for the reader, namely 'verbal humour', 'riddles', 'puns' and 'ambiguity'. It has outlined the way in which 'verbal humour' relies upon the flexing/distortion of linguistic rules and has shown how it depends upon the form of language in which it is communicated. This type of humour is the key element in the verbal riddle, a favourite form of children's joke. The verbal riddle form has consequently been examined as a distinct literary device requiring a certain level of genre competency for successful participation. The types of knowledge participants require to take part in a

verbal riddle exchange - participant roles, implicit rules for turn taking and the inverted nature of the interrogative act - have all been examined.

Additionally, and following on from the above, the concept of punning has been explored as a major device employed by riddles to elicit humour. Punning has been shown to rely upon the exploitation of two (or more) meanings contained within a single word/phrase and is thus inextricably linked to the ambiguous use of language.

Ambiguity itself has subsequently been examined both as a concept and as five discrete sub-types (lexical, phonological, morphological, syntactic and idiomatic). The different ways in which these five sub-types have been interpreted and applied in previous studies has been discussed. One of the most notable issues apparent from the analysis of ambiguity types is the inconsistency and 'looseness' with which they have been interpreted by previous researchers. Such imprecision and inconsistency in interpretation and application of discrete ambiguity types means that it is difficult to (a) be sure of the language phenomena that are being tested and (b) compare findings across studies. Consequently this limits the body of knowledge that might otherwise be developed within this particular field of research. The current study aims to address this issue by providing precise definitions for five different ambiguity types so that the researcher can be sure that the ambiguity type tested really does test the ambiguity type it purports to. Findings can then be applied to identify whether there are trends in children's ability to comprehend different types of ambiguities depending upon the different types of language phenomena manipulated to elicit humour.

The chapter has concluded by detailing how findings relating to the different types of ambiguity children understand at different developmental stages have a practical application. It explains how outcomes can be used to establish links with statutory stipulations (as contained within the Programme of Study for Key Stage 2) for the teaching of English in Wales – specifically oracy. It highlights recent changes in the national curriculum

for the teaching of English in English-medium schools in Wales and identifies the areas to which findings can be applied.

CHAPTER 3: METHODOLOGY

3.1 Chapter overview

As highlighted in previous chapters, there is little current research based upon young children's developing understanding of ambiguity-based humour. Consequently there was no contemporary framework to which this study could refer as regards the best way of testing participants' humour and ambiguity comprehension. There were therefore many decisions that had to be made by the current researcher in relation to the most appropriate and informative way(s) of testing participants' comprehension of verbal ambiguities in order to address the research questions as laid out in chapter 1. These decisions, and the basis upon which they were made, are all detailed within this chapter.

Firstly however there is a general overview of the study and the rationale behind its design (section 3.2). The ethical implications of working with participants too young to be able to give their own informed consent is discussed and details are provided about the steps taken to ensure that appropriate protection was provided for each individual taking part in the investigation (section 3.3).

Following this, information is provided in relation to participants (section 3.4), researcher (section 3.5) and research setting (section 3.6). The selection of stimuli is discussed (section 3.7) and the reason behind using riddles to test children's understanding of ambiguities is explained (section 3.7.1).

The chapter then picks up an earlier thread from chapter 2 and examines the ways in which ambiguities might best be defined in order to test children's understanding of discrete ambiguity types (section 3.8). This means that the first research question, namely 'In which way can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children's humour comprehension?' is addressed at this point in the study. It was necessary that this particular research question be

addressed at this stage – had it not been, then the methodology could not have been developed accordingly.

Discussion subsequently focusses upon the ways in which children's comprehension might best be measured, especially when their receptive language skills outpace their productive ones (section 3.9). Two types of assessment are examined - a multiple choice task and a verbal explanation task - and details are provided as to how each was trialled in a pilot study (section 3.10). Findings from the pilot study are then discussed and the ways in which outcomes were used to help refine the final research model are detailed (section 3.11).

The chapter concludes by detailing how data was collected and explains how it will subsequently be analysed in the following chapters in order to address the three remaining research questions.

3.2 Research design and rationale

This study draws a clear distinction between humour appreciation and humour comprehension. Whilst humour appreciation focuses on the pleasure derived from humorous exchanges, humour comprehension focuses on the ability to identify and resolve incongruous relationships (see section 2.2.1.5 for a fuller discussion). It can thus be argued that comprehension precedes (and is a pre-requisite for) the appreciation of humour - at least within an Incongruity Resolution (IR) framework of humour theory, where a riddle recipient needs to locate an incongruity (in the form of an ambiguous word/phrase) and then resolve the incongruity (by coming up with an alternative meaning for the word/phrase which makes sense in that specific context).

Comprehension was the main focus for the investigation, and one of the hardest issues to address was to how best to determine whether participants had understood a riddle based on ambiguous use of language.

It was important that opportunities were maximised for participants to communicate their understanding to the researcher. Previous studies have

addressed this issue by using multiple choice exercises (Yalisove 1978, McGhee & Panoutsopoulou 1990, Yuill 1998, Zipke 2007), participants' recall (Yalisove 1978, Fowles & Glanz 1977, Yuill 1998), participants' explanations (McGhee 1971b, Shultz 1974, Shultz & Horibe 1974, Prentice & Fathom 1975, Fowles & Glanz 1977, Hirsh-Pasek-et al 1978) and graded comprehension scores (McGhee 1971b, Prentice & Fathom 1975, Fowles & Glanz 1977, Hirsh-Pasek et al 1978).

Yuill (1998) defends recall as a valid means of testing to see whether children have been able to comprehend a joke or not by claiming that it is the specific wording of linguistic ambiguities that is vital to maintaining both potential interpretations. She argues that this method is less demanding for participants than having to provide verbal explanations. Fowles & Glanz (1977:439) also propose that recall is a valid means since 'a highly accurate repetition, adhering to the question-answer format of riddles, suggests awareness of the role of surface properties of language in verbal riddles'. (Their findings do lead to them to later acknowledge, however, that 'ability to recall a riddle . . . was not entirely predictive of ability to explain'.) Whilst these arguments were taken into consideration it was nonetheless decided that recall be eliminated as a comprehension measure on the basis that many young children are able to recall and recite short texts verbatim (in this instance riddle punchlines consisting of 3-9 words) - in so called 'parrot fashion' - often without any real understanding of their underlying meanings (Allington & Strange 1979). This left two other main options namely multiple choice exercises or the recording and transcription of verbal explanations.

Verbal explanations have been used in many studies as evidence of children's comprehension but researchers have not always addressed the fact that explanations require a specific type of metalinguistic proficiency and that some children, whilst able to identify an ambiguous word/phrase, are not yet able to explain with any clarity the reasons behind their punchline choices. Participants can therefore score low in verbal explanation tests even though they are capable of identifying and

understanding discrete types of ambiguities. Conversely, others have used multiple choice tests as proof of comprehension without closely examining the reasons behind multiple choice selections. Although the ability to consistently choose one of three potential punchlines is said to indicate an ability to comprehend discrete ambiguity types (McGhee 1977b), correct multiple choice selections can also be the result of a lucky guess, of participants finding punchlines conceptually (as opposed to verbally) humorous, or of participants finding punchlines funny for reasons logical to themselves but not for the intended wordplay contained within them (see section 4.2).

Given that the study had to accommodate the above discrepancies, it was determined that both multiple choice and verbal explanations each be trialled in a pilot study in order to determine their efficacy. (The pilot study is summarised in section 3.10).

Findings from the pilot study showed both tasks to have tested ambiguity comprehension but in two discrete ways. The multiple choice task tested the ambiguity to *identify* ambiguities and the verbal explanation tested the ability to *explain* ambiguities (see section 3.11.7 for further discussion). The two tests were subsequently combined in the final study (see section 3.12) in order to test participants' comprehension of verbal ambiguities in the punchlines of riddles. An investigation was made to determine whether participants' ability to identify and explain verbal ambiguities in the riddle punchlines differed across school Year Groups and whether ambiguity type affected proficiency in ambiguity identification/explanations. Both qualitative and quantitative methodologies were used to evaluate results (see sections 4.2, 4.3, 4.4). Each method provided a different type of analysis but it was the combination of the two which facilitated both theoretical and practical application of the findings. Theoretical application focussed on developing the final stage of McGhee's framework of humour development. Practical application centred on identifying the order in which different types of ambiguity-based verbal riddles might be introduced into the KS2 primary classroom and upon the ways in which ambiguity based riddles

could be used to meet statutory requirements for the teaching of oracy across Key Stage 2.

3.3 Ethics procedure

The issue of ethics was of considerable importance in this study both because it involved collecting and using information from living people not in the public domain and because the age of the participants meant that they constituted a ‘vulnerable’ group (ie. they were under 18 and unable to give their own informed consent). To ensure adequate protection for each individual a sequential stage of safeguarding was adhered to.

A checklist for ethical practice was completed, followed by the submission to, and full approval from, the university’s Ethics Officer and Ethics Committee. Only when clearance had been given did the researcher approach schools with a view to carrying out the preliminary pilot study and the final study. A copy of the approved Checklist for Ethical Practice is included in Appendix 1.

Once permission had been granted by the Headteacher of each participating primary school (pilot and main study), letters were sent to the parents/guardians of each child in Year 2 (aged 6-7), Year 4 (aged 8-9) and Year 6 (aged 10-11). Each letter contained information about the nature and purpose of the study and detailed how the data was to be collected, stored and analysed. It detailed how long an individual’s data would be kept and gave parents the opportunity to request that data be deleted prior to that date if so wished. Parents/guardians were informed that data (transcriptions, reading levels and languages spoken at home) was to be anonymised and that it would be impossible to trace information/comments back either to the school or to individual participants. Both the researcher’s and her supervisor’s contact details were included so that parents could contact them with any questions/concerns and for a copy of final findings if required.^{13 14}

¹³ No enquiries were made.

¹⁴ A copy of the consent letter and form are provided in Appendix 2.

The researcher held two CRB Certificates.¹⁵ Prior to the main study she attended a meeting on the school's safeguarding policy.

No child was able to participate unless a signed consent form had been received. The form asked not only for consent for participation but also for information about any additional languages spoken at home by the participants. Parents/guardians were informed that by giving their consent for their child's participation, they were acknowledging that their child's school reading scores would be used, if required, in the analysis of the data. (Scores were not used in the final analyses since they were unavailable for all participants. Some participants' reading levels did not register on the reading scales and different scales were used by Year Groups which made direct comparisons impossible). No information was used other than that for which permission was obtained.

Throughout the study the utmost care was taken to ensure that participants did not experience discomfort or find the activities stressful either physically or psychologically. If the researcher felt that a participant was feeling upset or uncomfortable at any stage, the study was stopped immediately and the individual's participation was terminated in a sensitive manner. This happened on one occasion during the pilot study.

3.4 Participants

The participants comprised 60 children from a local mainstream English medium primary school. Twenty children participated from each of the following Year Groups: Year Two (aged 6-7), Year 4 (aged 8-9) and Year 6 (aged 10-11). Both boys and girls represented each Year Group. Thirty five of the participants were male and twenty five were female. Gender was not analysed as this is not a consideration in the classroom in terms of literacy criteria. No screening was required as participants of all abilities across a Year Group (ie. a 'typical' class) were taking part. Hence no

¹⁵ A CRB (Criminal Records Bureau) check, since replaced by a DBS (Disclosure and Barring Service) check, records an individual's unprotected convictions, cautions, reprimands and warnings and any other information held by the police that relates to an individual and their suitability for a job position.

information about any disorders (eg. hearing/behavioural/attention) was requested or recorded.

Children aged 6-11 were selected as participants because this age range is said to relate to the two latter stages of humour development (Bariaud 1989, McGhee 1971a, 1971b, 1972, 1977a, 1979, 2002) and because it spans the primary age-group for whom humour and wordplay is to form part of the curriculum (Welsh Government 2015b:5). The intent behind testing a whole class of children was to yield group results which would could be applied across entire Year Groups, rather than to individuals. The findings could consequently be examined in relation to literacy requirements pertinent to Key Stage 2 as detailed in the new Programme of Study for the teaching of English in Wales (Welsh Government 2015b). The primary school in the study was located in a predominantly white middle-class area of South Wales and its intake of children reflected its location. The parental consent form asked for information about any languages spoken at home other than English. Out of the 60 responses one participant in Year 2 was listed as speaking German fluently at home as was another participant in Year 6. A participant in Year 6 was listed as knowing “a little bit of Arabic”. None of the participants in Year 4 were listed as speaking any language other than English at home.

3.5 Researcher

One researcher (myself) was responsible for collecting the data and this was of significance in the oral delivery of stimuli. Although different researchers would have been able to offer identical explanations and stimuli to the participants, the delivery of riddles dependent on morphological ambiguity required particular consistency in order to ensure stress and juncture did not vary and in turn affect individuals’ understanding of riddles dependent upon this type of ambiguity. Since only one researcher was responsible for reading aloud the riddles to participants it was easier to ensure that intonation patterns were consistent (and as neutral as possible) than had multiple researchers been involved in

the reading aloud of each riddle. It also meant that numbers and types of prompts were consistent. In a similar study Hirsh-Pasek et al (1978) employed actors to record riddles and played the recordings to participants on a tape recorder rather than have the researcher read them aloud. Although this method allows for consistency, it was not considered appropriate in this instance. The objective of direct interaction regarding riddle delivery was that the experience would result in being less formal, less intimidating and would be more natural and enjoyable for the participants than had an audio recording been provided for riddle delivery. Direct interaction was typical of the way in which the participants communicated with their class teacher on a daily basis and was thus a familiar experience for them.

The researcher was not known to the participants. Although a class teacher might have provided a more familiar face for administration of the study, this was not feasible since the process was considerably time-consuming and the teacher was occupied within the classroom. The researcher was a practising primary teacher and had considerable experience of teaching and engaging with children in all the Year Groups participating in the study. The riddle format meant that most participants seemed to relax in the company of the researcher and to enjoy the activity – they were often disappointed when it came to an end.

3.6 Research setting

The study took place during the school day and within the school building, a familiar environment for the participants. Participants were withdrawn from their classrooms and taken to a room outside their normal classroom. This meant that they were able to provide individual responses without being influenced by any of their peers. The location of the room in which the study took place varied according to the dictates of the school timetable. Although the location in which the activity took place was subject to variation, each location afforded the researcher the relative amount of privacy necessary to carry out the activity on a 1:1 basis and allowed for each individual to be recorded successfully. Each individual

took an average of fifteen minutes to complete the activity. Year 4 participated in the afternoons only since participants were taking part in 'Big Write' and 'Big Maths' Literacy and Numeracy programmes in the morning sessions and teachers were reluctant for participants to miss these core curriculum subjects. Year 2 and Year 6 participants took part throughout the school day.

3.7 Stimuli

Verbal (question-answer) riddles were used to test participants' ability to identify and explain different ambiguity types. Each riddle had an ambiguity in its punchline which depended upon the deliberate exploitation of ambiguous word(s)/phrase(s) to create a humorous effect (see section 2.9) – though it need not necessarily have elicited laughter.

3.7.1 The case for using riddles

The riddle format was chosen because it is a familiar and popular form of joke for children of this age (Wolfstien 1954, Zipke 2007, 2008) and has proved successful in testing children's comprehension of ambiguity types in prior studies (Shultz 1974, Prentice and Fathom 1975, Fowles & Glanz 1977, Yuill 1998). Children not only enjoy riddles but their familiarity with the riddle format means that they have a well-developed understanding of the strategies needed for decoding them (Zipke 2007). Riddles not only provide complete mini-texts (which require no further contextualisation), but also constitute small and therefore relatively easy units to analyse. Of particular importance is the fact that the riddles in the study contained punning punchlines which related to linguistic phenomena specified within previous primary literacy curricula (eg. phonemes, homophony, homonymy, compound words and idioms). The study investigated whether there was an order in which these different types of ambiguity were identified, and explained how this related to statutory requirements in the new Programme of Study for English (Welsh Government 2015b) which was implemented in primary schools in Wales in September 2015.

3.7.2 Riddle selection process

Riddles were sourced from contemporary children's joke books and/or had previously been communicated orally to the researcher. Although joke books included a wide range of riddles that children of this age are able to enjoy, not all were suitable for this particular study. Many of the riddles were excluded from the study because they did not contain ambiguous language (eg. metaphorical riddles, absurdity riddles, meta riddles).

Any remaining potential riddles were then rigorously scrutinised to examine what knowledge was actually needed (apart from linguistic knowledge) in order to understand the riddle. Careful consideration was given to the types of social/cultural/educational knowledge embedded within the riddles' punchlines since such knowledge would obviously vary according to age and consequently across the participating Year Groups. Following this analysis some riddles were excluded because they depended upon concepts or vocabulary which would not have been familiar to all participants eg. the riddle 'Who invented King Arthur's round table?' 'Sir Cumference' was eliminated because it relied not only upon knowledge of the mathematical term 'circumference', but also familiarity with the myth of King Arthur. It is likely that the older participants in the study (Year 6) would have been more familiar with both of the above than the younger participants in Year 2.

Some riddles were excluded because they relied on knowledge of another language or dialect. Others could not be used because they depended upon an orthographical awareness which would not have been consistent across Year Groups. Any potentially offensive or age-inappropriate riddles were automatically exempt from inclusion. All riddles contained more than a single word answer and were of a similar length. They were independent of specific props, gestures or pictures.

Riddles that contained more than one type of ambiguity or any type of interdependent ambiguity were excluded on the basis that it was not always obvious which type of ambiguity was actually being tested (see section

2.9.8). Care was taken to ensure that the ambiguous word/phrase in each riddle was always located in the answer (ie. the punchline) since it is claimed that ambiguity is harder to detect in the question rather than in the answer (Yalisove 1978). Not only did this allow for controlled results (ie. ambiguity position did not contaminate findings) but it allowed for future comparison of results with children's performance in ambiguity-in-question studies.

All the riddles contained examples of paradigmatic punning. This meant that either part of the utterance was phonetically similar to some other string not present in the utterance or that when the two utterances sounded identical, they were nonetheless lexically analysable in different ways (Ritchie 2004).

To summarise, all the riddles in the study:

- contained an ambiguous word or phrase in the answer
- contained vocabulary and concepts familiar to participants across all Year Groups
- were monolingual and did not rely upon dialect difference
- were age-appropriate and did not contain sensitive matters likely to cause offence
- contained more than one word in the answer (but no more than 9)
- were independent of specific props, gestures or pictures
- contained paradigmatic punning.

3.8 Ambiguity selection and classification

Having established that short question-answer riddles would form the stimuli for the current study and that each riddle punchline (answer) would contain an ambiguous word or phrase, it was then necessary to determine which types of ambiguity were to be tested and how these types of ambiguity might be classified ie. of what language features did they actually comprise? Only once these two issues had been addressed was it possible to ensure that riddles were chosen to contain ambiguity type(s) in

their punchlines which would yield data of maximum relevance to the research questions. Neither ambiguity selection nor ambiguity classification was straightforward however.

Firstly there was, and is, a multitude of ambiguity types available for testing, and decisions had to be made as to which ambiguity types would be most appropriate for testing children aged 6-11 and which related to types of wordplay and linguistic phenomena as previously specified in the national curriculum. It was outside the scope of the current investigation to test comprehension of all existent types of ambiguity, and thus the number of categories necessarily had to be reduced. After careful consideration this was achieved by compiling the following inclusion criteria:

- types of ambiguity related to categorisations and findings in previous studies on children's humour development (although categories are subject to variation) (Shultz & Pilon 1973, Shultz & Horibe 1974, Fowles & Glanz 1977, Hirsh-Pasek et al 1978, Yuill 1998).
- ambiguities tested were all *verbal* ambiguities, ie. they were based upon properties of language used within the riddle (see section 2.8 for a fuller discussion).
- categories corresponded with the types of ambiguity found in contemporary children's riddles.
- categories related to statutory requirements within previous and present UK National Literacy Curricula (eg. lexical ambiguity relates directly to the teaching of homonyms and homophones; phonological ambiguity to phonemic knowledge; morphological ambiguity to compound words; syntactic ambiguity to grammatical word classes and idiomatic ambiguity to idiomatic awareness).

Using the above criteria the types of ambiguity to be tested were reduced to five: lexical, phonological, morphological, syntactic and idiomatic (see section 2.9). These five types of ambiguity have not been tested in one single published study previously, although – idiomatic ambiguity aside –

the other categories have been investigated in various studies in varying combinations.¹⁶

At least three examples of each ambiguity type were needed in order to test comprehension. Three examples of each ambiguity type were used to reduce the possibility of participants selecting a correct punchline by chance. Since each participant had to listen to (and identify and explain) fifteen riddles, a considerable amount of time was needed per individual. (Prior to the pilot study it was estimated that this would be anything between 10-15 minutes; in the main study it took 15-20 minutes). Any inclusion of further categories of ambiguity would have necessitated a greater number of riddles and this in turn would have meant that the study would not have been completed within the timescale granted by the participating school. Moreover, since the main study's fifteen riddles required not only identification of a punchline but justification of choice, considerable intellectual and linguistic demands were placed on each participant. It was concluded that a greater number of riddles would have constituted an 'overload on processing', particularly for some of the younger participants in the study. Performance might well have been limited had participants got bored or lost attention if the tasks were too onerous or too lengthy. Both time constraints and processing demands contributed to the decision to have a limit of fifteen riddles.

Having established the five types of ambiguity to be tested, it was then necessary to establish criteria for the realisation of each ambiguity type. The literature review has shown definitions and interpretations of discrete ambiguity types to have either been absent or to have varied in interpretation and/or application across previous studies (see section 2.9). It was therefore decided to draw up precise definitions for each ambiguity type in order to address existent inconsistencies and to eliminate confusion regarding categorisation(s). The combined analysis of published taxonomies, prior studies and different types of linguistic properties used to

¹⁶ It was not feasible to test a greater number of ambiguity types in the current study since at least three examples were needed within each category in order to provide evidence of ability to detect that specific type of ambiguity.

elicit humour were all used to inform specification of different types of ambiguity. Potential overlap in linguistic phenomena was eliminated as much as possible to minimise interplay (see section 2.9.8) between different types of ambiguity and to allow the researcher to be sure of the ambiguity type being tested at any given time. In addition, two further adult researchers evaluated the ambiguity definitions and all agreed on the types of phenomena which they embodied.

In light of the above, research question number one, ‘In which way can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children’s humour comprehension?’, was addressed at this stage of the study. This was because definitions relating to linguistic phenomena embodied within riddle forms needed to be accommodated within the research design before any testing could be carried out on participants. The definitions which address this research question are listed below.

3.8.1 Ambiguity types defined

Lexical ambiguity

Lexical ambiguity occurs solely within the alternative meaning of an individual lexical item and does not rely upon grammatical analysis at phrase/clause/sentence level. It occurs when a singular word has more than one meaning without any class violation. This type of ambiguity encompasses homonyms, homophones and polysemes, since when relayed orally, all three carry the same sound but different meanings.

Example: Why are babies good at football? Because they can dribble.

Phonological ambiguity

Phonological ambiguity occurs when the ambiguous fragment of riddle text has two non-identical phonetic forms for the two alternative interpretations. The modification of the phonetic form can comprise the addition, deletion

or substitution of a phoneme. It does not involve modification of phonetic form across word boundaries and is contained within a single lexical item.

Example: What do whales eat for dinner? Fish and ships.

Morphological ambiguity

Morphological ambiguity occurs when there are changes in morpheme boundaries for the two readings of the text. Other than variation in stress or juncture, the ambiguous fragment of the riddle has identical phonetic forms for the two alternative interpretations.

Example: Why did the jelly wobble? Because it saw the milkshake/milk shake.

Syntactic ambiguity

Syntactic ambiguity occurs when two different underlying syntactic structures are mapped onto a single surface structure. The two different syntactic representations reflect different underlying grammatical relations between lexical items. Syntactic ambiguity relies upon grammatical analysis at whole phrase, clause or sentence level.

Example: How was the blind carpenter able to see? He picked up his hammer and saw.

Idiomatic ambiguity

Idiomatic ambiguity occurs when the figurative meaning of an idiom is confused with the literal meanings of its individual lexical components.

Example: What does Spiderman do when he's angry? He goes up the wall.

3.8.2 Ambiguity-based riddles used in the study

Riddles used in the main study are detailed below. They are listed according to ambiguity type for ease of reference. They were not presented to participants in this order however - in both pilot and main study the

riddles were ordered so that the same ambiguity type did not appear in consecutive riddles. The order in which the riddles and punchlines were presented to participants was identical to all. A list of the order in which riddles were presented can be found in Appendix 5.

3.8.2.1 Riddles based upon lexical ambiguity

Why are babies good at football?

Because they can dribble

When is the best time to buy chickens?

When they are going cheap/cheep

Why can't you ever win at cards in the jungle?

Because there are too many cheetahs/cheaters

3.8.2.2 Riddles based upon phonological ambiguity

How did the banana know he was ill?

He wasn't peeling well

What do whales eat for breakfast?

Fish and ships

What's a mouse's favourite game?

Hide and squeak

3.8.2.3 Riddles based upon morphological ambiguity

Why couldn't the skeleton go to the ball?

Because he had nobody/no body to go with

Why did the jelly wobble?

Because it saw the milkshake/milk shake

When are roads angry?

When they are crossroads/cross roads

3.8.2.4 Riddles based upon syntactic ambiguity

Why is six afraid of seven?

Because seven eight/ate nine

How was the blind carpenter able to see?

He picked up his hammer and saw

Why do leopards make rubbish thieves?

Because they're always spotted

3.8.2.5 Riddles based upon idiomatic ambiguity

Why did the robot act silly?

Because he had a screw loose

What does Spiderman do when he's angry?

He goes up the wall

Why did the schoolboy eat his homework?

His teacher said it was a piece of cake

3.9 Comprehension assessment

As discussed in section 3.2, children's comprehension of verbal ambiguities has been assessed in previous studies using different methods. Two different methods, multiple choice and scored verbal explanations, were trialled in the pilot study (see section 3.10) and were subsequently combined in the main study. Both tasks tested comprehension but they tested it in different ways and thus placed different cognitive demands on participants as further discussed below. The multiple choice task tested the

ability to *identify* an ambiguity and the verbal explanation task tested the ability to *explain* an ambiguity.

3.9.1 Multiple choice task

It is claimed that if a child can consistently choose the original of three alternative joke endings ‘some evidence of comprehension has been provided’ (McGhee 1977b:207). Based upon this premise, a multiple choice task was developed to trial in the pilot study.

The multiple choice task was designed to minimise language production demands. The aim in doing so was to reduce performance requirements that might otherwise have limited individuals’ task execution. It involved a riddle question being read aloud to participants (individually) followed by three different punchlines answers. Each participant was to choose the punchline he deemed to be the one which, when combined with the interrogative, made the exchange into a verbal riddle. One of the punchlines was the original version whereby an ambiguous word or phrase was contained within the riddle’s answer. The other two punchlines contained either a ‘plausible’ answer to the riddle question or an ‘irrelevant’ one. The ‘plausible’ answer was one which contained a logical answer to the riddle question. It treated the riddle question as if it were a bona fide request for information rather than one intended to elicit a humorous response. The ‘irrelevant’ answer was one which neither treated the question as a bona fide request for information, nor as a humorous exchange intended to elicit humour. For example:

How did the banana know he was ill?

He wasn’t peeling well (original answer)

He had a high temperature (plausible answer)

He looked out of the window (irrelevant answer)

Original, plausible and irrelevant answers were agreed by two independent raters and can be found in the list of riddles in Appendix 5.

There was potential overlap in original and plausible punchlines in a limited number of cases but original answers were scored as being 'original' on the basis of their appearing as such in traditional versions of established riddles. 'Original' punchlines all had the potential to elicit humour on the basis of their dual interpretations whereas 'plausible' ones did not.

There was no obligation for participants to justify their punchline selections when the multiple choice task was trialled in the pilot study. All they had to do was to select, and repeat, whichever punchline they thought that - when combined with the preceding interrogative - made it into a riddle. This afforded participants, particularly those who might have struggled to convey their understanding of ambiguities metalinguistically, the opportunity to demonstrate their comprehension through selection.

3.9.2 Verbal explanation task

Whilst multiple choice tasks allow for some evidence of comprehension, they do not necessarily provide researchers with insight into the reasons behind punchline choices. In such instances children's verbal explanations are said to provide a more direct indication of how they understand a joke (McGhee 1977b). It was therefore decided that a verbal explanation task also be trialled in the pilot study and that findings be compared with those of the multiple choice task.

The verbal explanation task trialled in the pilot study did not involve participants having to make punchline choices. It simply required participants to listen to a question-answer riddle read aloud by the researcher and to explain how the riddle 'made sense' to them as a humorous device.

Explanations of this nature have been used in many previous studies but are not without complication. Young children are still in the process of developing both linguistically and metalinguistically and cannot be expected to verbally explain their understanding of humour as easily as

adults, particularly when the concepts involved become increasingly more complex. This issue was addressed by providing the following means of support during the pilot study:

- by the researcher providing examples of punchline explanations referencing both sides of ambiguous words/phrases in ‘warm-up’ riddles prior to the commencement of the activity ie. modelling answers for participants
- by providing each participant with the opportunity to have a ‘dummy run’¹⁷ at explaining a riddle using the framework modelled in the ‘warm-up’ riddle and then discussing their responses
- by providing non-leading prompts
- by accepting participants’ gestures in addition to their verbal explanations.

Each of these means of support is discussed further below.

3.9.2.1 Modelling answers for participants

The objective in modelling answers for the participants was to give them the opportunity to hear how the two sides of the ambiguity could be - and needed to be - explained so that evidence might be collected relative to their understanding of each ambiguity. McGhee (1977b) has suggested that modelling answers in this way can alert a child to dimensions of the humour stimulus that might otherwise have been overlooked. It seems probable however that children are already attuned to the likelihood of there being some type of ambiguity in the riddling context given their familiarity with the riddle format and the ways in which riddles ‘work’. Moreover the modelling of an answer framework ensured that each participant, regardless of past experience in riddle explanations, was afforded equal opportunity in attuning himself to what to listen for (an ambiguous word/phrase) and how to explain it (by referring to both sides of the ambiguity). Participants were given the opportunity to ‘practise’

¹⁷ Each participant had one practice ‘dummy run’.

justification of punchline choice with the model framework before the task began (see section 3.10.2).

3.9.2.2 Prompts

Although the above ‘answer modelling’ aimed to alert participants to the need to explain both sides of an ambiguous word or phrase, it was anticipated that there would nonetheless still be instances where prompts would be needed in order to elicit a participant’s full understanding. Any such prompts were strictly non-leading (eg. ‘and?’ or ‘so?’) and were employed to ensure that participants had full opportunity to convey their understanding.

3.9.2.3 Gestures

It was acknowledged that comprehension precedes verbal skills in young children and that when participants were not able to express their understanding verbally, they might resort to using actions, mimes and gestures to convey their understanding and to supplement their explanations - as Goldin-Meadow points out, ‘gesture has privileged access to information that children know but do not say [and] as such, it can serve as an additional window to the mind of the developing child’ (2000: 231). Gestures are specifically said to aid children in lexical disambiguation tasks, leading Kidd & Holler to claim that ‘for children who find verbal disambiguation difficult, gesture may provide a crucial disambiguating tool’ (Kidd & Holler 2009:905). Gestures were therefore noted and accepted as evidence of comprehension where appropriate.

3.9.3 Comprehension scores

Careful consideration was given to the fact that comprehension is often defined by criteria based on adult comprehension. Although young children often find riddles funny for reasons less obvious to their elders most studies corroborate the fact that children tend to perceive jokes (especially those based on verbal ambiguity) more like adults as they develop in age. In this respect it was decided that comprehension scores for the verbal explanation task would be based upon participants relating

each riddle's 'intended' humour to the actual language used within the riddle rather than to any conceptual notion. Within an IR framework of humour, this meant that comprehension of any given riddle depended upon identification of an incongruous word or phrase and its subsequent resolution as originally intended by the riddle's author. Comprehension was consequently viewed as a bipartite process involving interpretation of a punchline based on the initial meaning of an ambiguous word/phrase and some form of backtracking in which participants were able to find another meaning for the ambiguous word/phrase which was compatible with the punchline.

In order to measure comprehension participants' responses needed to be scored. Two different types of comprehension scores were trialled in the pilot study, one system for the multiple choice task and one for the verbal explanation task.

3.9.3.1 Multiple choice scores

The scoring system for the multiple choice task trialled in the pilot study awarded a 1 each time an original punchline was chosen. When non-original punchlines were chosen (ie. 'plausible' and 'irrelevant' punchlines) a 0 was awarded. Individual scores and Year Group scores were subsequently totalled so that quantitative analyses could be carried out on how many original punchlines were chosen over 'non-original' punchline selections.

3.9.3.2 Verbal explanation scores

A different scoring system from that of the multiple choice task was trialled for the verbal explanation task in the pilot study. This scoring system was based upon the number of meanings (of ambiguous words/phrases) that participants were able to explain to the researcher. Scores were awarded for meanings commonly found in English dictionaries. It was expected that participants would be familiar with these meanings since stimuli had been carefully selected (by the researcher who was experienced in teaching each participating Year Group and who used

criteria detailed in section 3.7.2) to match both conceptual and linguistic development. Although dictionary definitions were the ones by which meanings were determined, it was not anticipated that participants would necessarily define, or convey, the meanings of words in the same manner as the individuals who compiled them – although certain individuals came very close.

Comprehension scores for verbal explanations have appeared in many previous studies and are based on participants' abilities to identify and explain two sides of any given ambiguity by pulling together and contrasting discrepant elements. Most scores start at 0 to indicate no identification of ambiguity but they often differ in the values assigned to indicate either partial or full comprehension. For example, whilst Prentice & Fathom (1975) assign a 1 to denote full comprehension, Hirsh-Pasek et al (1978) assign a 5. Other researchers have assigned values which lie somewhere between these two extremes depending on the type of scoring system adopted.

In this instance, it was decided to trial a comprehension measure ranging from 0-2. Scores were designed to indicate the degree to which a participant had understood (or at least been able to *communicate his understanding of*) ambiguous word(s)/phrase(s) in the punchlines of riddles. The score reflected whether a participant had been able to fully communicate his understanding of an ambiguity (by making reference to both meanings of an ambiguous word/phrase), to have partially communicated it (by making reference to one meaning) or not to have communicated it at all (by making no reference to either meaning). These ratings did not necessarily mean that the participants found a riddle 'funny' (though frequently they did), rather that they were able to identify and explain the verbal ambiguity contained within the riddle.

The pilot study therefore trialled a three point scale with each point assigned the following values:

- | | |
|---|---|
| 0 | No reference made to ambiguous word/phrase |
| 1 | Reference made to one meaning only of the ambiguous word/phrase |
| 2 | Reference made to both meanings of the ambiguous word/phrase |

3.10 Pilot study

3.10.1 Pilot study rationale and administration

Both pilot and final study were an aural condition rather than a reading one in order to eliminate any interference with comprehension due to reading difficulties among the younger participants. This also meant that any written bias residing in the orthographical representation of ambiguities was eliminated in its delivery.

The principal aims of the pilot study were:

- to identify appropriate means of eliciting participants' comprehension
- to develop a comprehension scale with which to evaluate participants' comprehension
- to evaluate the efficacy of non-leading prompts
- to use the timings to calculate the timescale necessary for a larger scale study
- to 'road test' the riddles to see if they were appropriate for use (both developmentally and conceptually) across Year Groups
- to identify transcription features necessary for final analysis.

The initial aim was for 12 participants from each Year Group (Years 2, 4 and 6) to take part. However the response uptake varied across Year Groups and the pilot study thus ensued with 14 participants from Year 2 taking part, 12 from Year 4 and 6 from Year 6.

Participants in the pilot study attended a neighbouring school with a similar intake of pupils to the one in which the final study was to take place. A different school from the one in which the final investigation was to be carried out was chosen because the intent was that each time the participants heard a riddle (both in the pilot and final study) it would be for the first time. It was impossible to ensure that none of the participants had ever heard any of the riddles previously. Participants were asked to indicate if they had heard any of the riddles before, however, and a note was made each time they had. Back-up riddles were prepared for each ambiguity type should a riddle have been heard previously. Participants were also asked to indicate (if aware) when any of the vocabulary in the riddles was unknown to them. When this occurred, an explanation of the unknown lexical item was provided.

One of the main aims of the pilot study was to compare how/if comprehension rates differed according to the way in which the task was administered. To this end, each Year Group of participants was divided in half and given the opportunity to convey their understanding by different means - multiple choice or verbal explanation. In both instances, the task was carried out on participants individually so that their own understanding was recorded rather than that of a group.

3.10.2 Pilot study procedure

Before commencement of either multiple choice or verbal explanation task the researcher asked participants if they knew what a riddle was and discussed this particular joke form with them. A riddle was described as a special type of joke which was made up of a question and a ‘surprising’ answer. The researcher described how the answer to the riddle question (at least in this study) contained certain word(s)/phrase(s) which had two different meanings and which were intended to make the answer to the question funny (although this didn’t always mean that people who heard the joke were expected to laugh).

The first group was tested using multiple choice. The researcher read aloud a riddle question together with three potential punchlines, one of which was the original punchline containing an ambiguous word/phrase. The participant was then asked to choose the punchline that he thought, when coupled with the question, made the question-answer exchange into a riddle. Original punchlines were placed in random positions (first, second or third) for the fifteen riddles but were read out in an identical order to all participants. Participants were able to request question or punchlines to be repeated as many times as was needed.

Prior to the pilot study the researcher had trialled reading the riddle question aloud before each of the three potential punchlines to three children within the age range of the study. These children were not participants in either the pilot or main study. The children reported that they found the constant repetition of the riddle question made it 'boring' and that it '[made] it take too long'. Their interest in the activity faded before it was halfway through. This then was the justification for reading the riddle question only once. It was emphasised to participants however that they could request the question or punchlines to be repeated as many times as required.

Once the researcher had explained to participants what the multiple choice task entailed, she then read a riddle question aloud (otherwise not included in the study) followed by three potential punchlines and subsequently chose the correct (original) punchline herself in order to model what the activity involved. The researcher explained why she had chosen that particular punchline by referring specifically to both meanings of the ambiguous word contained within the punchline. Although the researcher's explanation laid emphasis on the two different meanings of the ambiguous word as a basis for her choice, it was explained to participants that they would not be required to provide any justification for their own choice(s) of punchline(s) in this task. Each participant had the opportunity to have a 'dummy run' with a riddle question and three potential punchlines. The riddle in the 'dummy run' was not included in the task

itself. All participants had the opportunity to ask questions or seek clarification(s) before the actual task began. Whilst one or two participants sought general clarification as to the general procedure, most questions related to the recording apparatus! Participants were curious as to what buttons on the audio-recorder were for and what the various combinations of lights signified (eg. 'on/off', 'pause', 'record' etc).

As discussed in the previous chapter (section 2.9.5) riddles containing morphologically ambiguous word(s) presented a dilemma in terms of their oral delivery. Since their dual interpretations were realised by two different phonological realisations in terms of stress and juncture, the researcher delivered what she considered to be a middle course between each pair of phonetic forms, thus minimising any potential biased stress placement/pauses in riddle delivery.

Each punchline choice was recorded for later analysis. Although participants were not asked to provide any justifications for their choices, several participants did so spontaneously (although these explanations were not recorded).

In the second group individual participants were read the same riddles as the previous group but were not given multiple choice punchlines. These participants heard only the riddle question coupled with the original punchline. They were then asked to explain their understanding of the riddle (ie. how the punchline made sense to them). As with the multiple choice activity, the researcher modelled the task to show the participants what it entailed. This involved her reading aloud the same practice riddle as in the multiple choice activity and describing how it made sense to her (as a riddle) by identifying and explaining the two different sides of the ambiguous word contained within the punchline. Another riddle was then read aloud and the participant had an opportunity to explain the riddle punchline using the framework modelled by the researcher. Neither of these 'warm-up' riddles was used in the actual study. Participants were subsequently recorded on a TASCAM recorder explaining their individual

understanding of each riddle in their own words. The explanations were later transcribed for analysis to compare with the data from the participants who had participated in the multiple choice activity.

3.10.3 Pilot study results

The small number of participants and inconsistency in numbers participating across Year Groups prohibited any detailed statistical analysis of findings since data this small often leads to insignificant, inconclusive or flawed results. The pilot study did however suggest that differences in administration might well prove of consequence in terms of analysis of proficiency in ambiguity comprehension. It was noted that, although multiple choice selection relieved participants of the pressure of explaining the metalinguistic reasoning behind their choices, participants' (unsolicited) spontaneous explanations for their choices sometimes revealed that they were choosing the original punchline for reasons other than the intended wordplay. Verbal explanations, on the other hand, although more demanding for participants, offered a greater insight into *why* participants had chosen specific multiple choice answers. It was thus concluded that both multiple choice and verbal explanations be used in the final study for a combined analysis.

3.11 Reflection upon pilot study

Although the numbers participating in the pilot study were relatively small, the study nonetheless provided invaluable information in terms of areas in need of refinement before the final study took place. Information was obtained about the modelling of explanations, the appropriateness of certain prompts and the role that gestures played in supporting some participants to convey their metalinguistic awareness. In addition, the study helped identify which riddles were most appropriate for use, which transcription features were necessary and helped to calculate timings for a larger scale study. The need for 'back-up' riddles in each category of ambiguity (for use when a participant had already heard a riddle previously) was also highlighted, and the need for clear criteria for coding the comprehension scores for verbal explanations became apparent.

3.11.1 Modelling

Modelling answers is a strategy likely to have been familiar with the participants since it is so frequently used within the primary classroom. It proved a successful strategy in the pilot study. After the researcher had provided a model example of a riddle explanation (by referring to both sides of an ambiguous word or phrase) most participants were able to comprehend what participation involved and subsequently demonstrated this both in their practice riddle explanation and in the subsequent tasks. It was decided that modelling answers would remain an integral part of the final study as it provided participants with a helpful framework upon which to base their explanations.

3.11.2 Prompts

Non-leading prompts constituted another successful strategy for eliciting explanations from participants and often contributed in helping them communicate their understanding of why ambiguous words/phrases had been used in individual riddles. Sometimes a simple ‘and?’ was sufficient in allowing a participant to impart their understanding. On occasion however the use of this word appeared to make some participants feel that they had omitted something important or had left the explanation incomplete. Although this may well have been the case, the intent of the prompts was not to make participants feel uneasy or to feel that they had failed to complete any explanation satisfactorily – it was intended to support. The prompt was thus revised to ‘And anything else?’ Whilst this too implied that further explanation might be necessary, the effect seemed to be less face-threatening to participants. This new prompt was thereafter explicitly discussed in the introductory explanation to the activity and was incorporated into the model example provided by the researcher.

Participants were reassured that there was no need to worry if they had nothing further to add and it was explained that the prompt was being used for all participants so that everyone was afforded the same opportunity to share their understanding based on the same prompt.

In instances where an individual simply repeated their initial understanding or simply repeated the ambiguous phrase in response to a prompt, subsequent prompts (though still non-leading) were necessary. For example, when a participant responded to the request to explain what dribbling meant, he replied ‘You know *dribbling*’. It was therefore necessary to ask ‘Would you please explain to me what you mean by dribbling?’ in order for the relevant information to be imparted. It was thus determined that, in addition to the more basic ‘And anything else?’ prompt, additional prompts would be necessary and that these would be contextually bound and would vary according to individual responses.

3.11.3 Gestures

The use of gesture to convey meaning had been anticipated prior to carrying out the pilot study and participants did indeed choose to avail themselves of this communicative strategy, specifically in the verbal explanation task. Five participants in Year 2, one participant in Year 4 and one participant in Year 6 used gestures to help communicate their understanding of the meanings of ambiguous words and phrases. Those that did use gestures tended to use them more than once as a communicative strategy. For example, in response to the riddle, ‘Why are babies good at football? Because they can dribble’, several participants conveyed their understanding of the dual meaning of dribble by both pointing to their mouths and by the kicking of an imaginary football. These gestures were taken to convey understanding of both meanings of the homonym ‘dribble’ despite their not being verbally expressed.

It was therefore concluded that gestures were a valuable tool for some participants, particularly those who were unable to convey their understanding by verbal means alone, and that their inclusion in the analysis for the final study was both valid and informative. Both deictic and iconic gestures were recorded by the researcher in the transcriptions of explanations for punchline choice. The deictic gestures were simple pointing gestures (eg. pointing to the mouth to suggest dribbling) whereas the iconic gestures were ‘gestures that represent semantic information,

referring to a concrete concept, in an imagistic manner’ (Kidd & Holler 2009:906) (eg. miming running with a football).

3.11.4 Stimuli elimination

The pilot study used four riddles each to test comprehension of five discrete ambiguity types (lexical, phonological, morphological, syntactic and idiomatic) – but only three riddles were to be used per ambiguity type in the final study. Accommodating an extra riddle per category in the pilot study meant that all the riddles could be tested whilst simultaneously entertaining the possibility that one or more might not ‘work’ for some unanticipated reason. This did, in fact, prove the case for individual riddles in three of the ambiguity categories. One of the riddles based on morphological ambiguity contained a word unfamiliar to many of the participants (the word ‘jockey’); one of the riddles based on syntactical ambiguity contained an ellipsis of the main verb which may have made it artificially more difficult for participants to grasp, and a third ambiguous meaning was discovered by a participant for a riddle based on idiomatic ambiguity – which was a meaning too many! These three riddles were automatically eliminated. Riddles dependent upon lexical or phonological ambiguity contained no such obvious obstacles to comprehension, however. Hence a random riddle was eliminated from the category of phonological ambiguity and a riddle about football was removed from the category of lexical ambiguity on the simple basis that there were two riddles in this category which related to a similar topic. This left three riddles in each of the five categories of ambiguity for use in the final study. These riddles can be found in Appendix 5.

3.11.5 ‘Back-up’ riddles

The pilot study highlighted the need for a list of ‘back-up’ riddles for each category of ambiguity. This was particularly noteworthy in the case of syntactic ambiguity where one of the riddles was comprehended by every participant in Year 2. The riddle in question ‘Why is six afraid of seven?’ ‘Because seven eight/ate nine’ had been told – and explained - to the whole Year 2 class the week before by their maths teacher, and subsequently each

participant was able to explain this riddle, despite it proving problematic for some of the older participants in Years 4 and 6. Prior knowledge and previous experience of explaining a particular riddle therefore proved to have a notable bearing upon results and in order to address this, it was determined that a list of ‘back-up’ riddles needed to be provided for each type of ambiguity to be tested.

3.11.6 Transcriptions

Orthographical transcriptions were provided for every participant in the group that participated in verbal explanations. Context was not always sufficient to determine intended meanings of homophonous words however. Homophones were therefore recorded phonetically so as not to influence potential raters when scoring verbal explanations (see Appendix 6). In instances of morphological ambiguity, word boundaries were recorded according to juncture used by individual participants.

Transcripts also had to accommodate the fact that some participants, rather than describe or explain word/phrase meanings, chose to use stress to highlight an ambiguous segment or phrase. For example when addressing the phonological ambiguity in the riddle:

Riddle 5

‘How did the banana know he was ill?’

‘He wasn’t peeling well’

stress was often laid on the words *peeling* and *feeling* in the subsequent explanations. One participant thus explained ‘Because it was meant to be feeling well because it’s a banana peeling.’ It was therefore decided that any word or sound that participants stressed significantly (ie. that varied notably from conventional stress patterns) would be underlined in order to highlight the way in which attention was being drawn to the ambiguous word or phrase. Underscoring was used to indicate word stress rather than mark(s) over syllables in order that any potential confusion between stress and speech marks be eliminated. Underscoring provided a straightforward

way of communicating stressed words to raters who, although seasoned examiners of English Language, were less familiar with the conventions of linguistic transcriptions.

3.11.7 Comprehension: identifying and explaining ambiguities

Analysis of transcripts and multiple choice scores showed that comprehension of ambiguities was being measured – but in two distinct ways. The multiple choice task was testing comprehension in terms of being able to *identify* an ambiguity and the verbal explanation task was testing comprehension in terms of being to *explain* an ambiguity. In this way the two tasks were placing different cognitive demands upon participants, differences which have often been overlooked in previous studies.

3.11.7.1 Identifying ambiguities

The multiple choice task required participants to identify ambiguities in the punchlines of riddles. An examination of punchline choices showed some participants to have consistently chosen the correct (original) punchline from a selection of three. In such instances it was deemed that ambiguities were being correctly identified (and comprehended).

Participants were not requested to justify punchline choices in the multiple choice task in the pilot study but frequently did so: ‘I get that one because . . .’ It soon became obvious that their spontaneous explanations were able to provide the researcher with greater insight into the reasons behind punchline selections than a multiple choice task carried out in complete isolation would have done.

3.11.7.2 Explaining ambiguities

Unlike the multiple choice task, there was no ‘choice’ involved in the verbal explanation task in the pilot study. Participants were provided with complete riddles (ie. original riddle question together with original riddle punchline) and had to explain their understanding of how the riddles made sense in the context of comprising a ‘joke’. They were therefore required

to locate and explain meanings of ambiguous words/phrases contained within riddles' punchlines. If participants were able to explain one or more meanings of the ambiguous word/phrase upon which the humour depended, they were scored accordingly and this was taken as evidence of comprehension. Unsurprisingly, some participants found it more difficult to explain how they thought a punchline made sense than others, despite being adamant they understood its machinations. Whilst this might well have constituted an attempt to save face, it is likely that some participants did in fact understand the ambiguity but had not yet developed the requisite linguistic or metalinguistic skills needed to communicate that understanding.

In conclusion, the multiple choice and verbal explanation tasks both tested comprehension but in two quite different ways. Both required metalinguistic application by participants but they placed differing demands upon participants depending upon whether comprehension was being measured receptively (identification of an ambiguity) or productively (explanation of an ambiguity). The multiple choice task alleviated language production demands relating to justification of punchline selections but did not give the researcher any insight into why individual punchlines had been made. The verbal explanation task on the other hand afforded the researcher an insight into reasons behind punchline selections but was potentially more difficult for individual participants. It was therefore decided to combine the two tasks in the final study. Each task provided a counterbalance to potential weakness in the other and by combining the two tasks, a richer set of data could be obtained than had one of the tasks been carried out in isolation. It also allowed for a direct comparison of results. Both ambiguity identification (in the multiple choice task) and explanation scores (in the verbal explanation task) were treated as being indicative of comprehension of ambiguities in punchlines, but differences between the two tasks, the cognitive demands they placed upon participants, and their respective strengths and limitations were acknowledged.

3.11.8 Multiple choice scores

The scoring system for the multiple choice task trialled in the pilot study awarded a 1 each time an original punchline was chosen. When non-original punchlines were chosen (ie. 'plausible' and 'irrelevant' punchlines) a 0 was awarded. Individual identification rates and Year Group rates were subsequently totalled so that quantitative analyses could be carried out on original punchline selections over 'non-original' punchline selections. Whilst this provided information relating to 'original' v 'non-original' selections for each Year Group, it did not afford the researcher any insight into trends in punchline selections participants made when not selecting original punchlines. It was therefore determined that in the main study choices be recorded as an 'O' to indicate 'original' punchline selection, 'P' to indicate 'plausible' punchline selection and an 'I' to indicate 'irrelevant' punchline selection.

3.11.9 Comprehension scale

The 0-2 scale trialled in the pilot to score verbal explanations study proved a workable one for coding transcriptions although some of the participants' explanations did not necessarily fit as easily into distinct categories as previous studies might suggest. Published studies, whilst using comprehension scales of a similar nature, fail to give detailed criteria by which comprehension is determined. Although reference is often made to scores being awarded when one or more meaning(s) are 'acknowledged' (McGhee 1971b), 'mentioned' (Shultz & Horibe 1974), 'specified' (McGhee 1971b), or 'detected' (Shultz & Pilon 1973, Shultz & Horibe 1974) there is a distinct lack of guidance as to the criteria by which these terms might be manifested. Previous researchers report participants having been scored on the basis of their having made an 'articulation of [the] main point' (Prentice & Fathom 1975:212) or 'conscious judgements of ambiguity' (Hirsh Pasek et al 1978: 110) but do not explain what this entails. Occasionally the odd example is supplied but one has to read between the lines and, in the absence of any explicit guidance, infer how the examples relate to the scoring systems.

Given the lack of published comprehension criteria, it was necessary to draw up a list of criteria by which to determine whether, and how, meanings had been communicated in the verbal explanation task.

3.11.10 Comprehension criteria

Comprehension criteria were determined through analysis of participants' transcribed explanations to identify the ways in which they were attempting to communicate their understanding of ambiguous meanings. Every attempt was made to accommodate the different ways in which participants endeavoured to communicate their understanding. It was important to ensure – as far as possible - that participants' *understanding* was being scored as opposed to the participant's *ability to articulate their understanding*.

The analysis of transcribed explanations showed participants to have employed various different strategies to communicate understanding of ambiguous words and phrases. These strategies were used both as stand-alone means of communicating understanding and in varying combinations. Each identifiable strategy was used to inform the comprehension criteria given to raters for the final study (see Appendix 6). Since strategies identified in the pilot study necessarily had to be combined with those identified in the main study in order to provide final comprehension criteria for raters,¹⁸ these strategies are discussed in full detail in section 4.2.5.

3.11.11 Raters

Even the most clearly defined criteria could not eradicate the fact that their application would be subjective to a certain degree. It was thus determined that two additional raters would be asked to code the responses separately in order to ensure inter-rater reliability in the main study. These additional raters were not present at the time of the recordings but read the transcripts and worked independently to score the explanations using the given comprehension criteria detailed above. (A full copy of the instructions and

¹⁸ And there was much duplication.

comprehension criteria given to the raters can be found in Appendix 6). The raters were native speakers of English with experience of teaching English both as a first and second language. Both additional raters had been examiners of English Language for 30 years.

Given that it was necessary to prioritise analyses in terms of how they contributed to the original research questions, only those explanations which accompanied a correct (original) punchline selection were scored by the raters (and researcher) for subsequent quantitative analysis. This was due to the large volume of recordings/transcriptions and time demands upon raters, both of whom had provided their expertise voluntarily.

This did not mean that non-target responses were of no interest, however. Equally valuable, they were to be analysed qualitatively by the researcher. Although non-target responses did not directly relate to the investigation into the ability to detect/explain word(s)/phrase(s) with more than one meaning, the explanations which accompanied them nonetheless provided a valuable insight into the ways in which the participants viewed the world at discrete developmental stages and the coping strategies they were employing to do so. It also allowed for the identification of trends when target responses were rejected.

3.11.12 Timings

Timings varied and were dependent upon task and Year Group.

Overall the verbal explanation task took longer than the multiple choice task. The older participants (Year 6) were much quicker in their explanations than were the younger ones (Year 2). The average time of verbal explanations for twenty riddles was approximately fifteen minutes, including explanation, warm-up activity and opportunity for questions. However, the pilot study carried five extra riddles which were not to be included in the final study. It was thus anticipated a rough average time of ten minutes would be required for each individual's verbal explanations in the final study.

The multiple choice activity took on average eight minutes including explanation, warm-up activity and opportunity for questions. This activity took longer than anticipated, as it had to accommodate participants spontaneously explaining how they ‘got’ the riddle even when there was no request to do so.

A further factor to be taken into consideration was movement around the school ie. how long it took for each participant to return to class and notify a subsequent participant to come to an area outside the classroom where the study was taking place. School break times also had to be accommodated. The average time between participation of one individual and another was 2-3 minutes.

Timings as described above were for two discrete tasks. In the final task however both multiple choice and verbal explanation were to be combined. This meant that there was some overlap in the way in which the tasks were introduced, modelled and ‘trialled’ by participants (in the form of ‘dummy runs’). It was thus concluded that an average of 15-20 minutes would be needed per individual in order to accommodate greeting, riddle discussion, task explanation, modelling, ‘dummy run’, multiple choice selection(s), recording of verbal explanation(s), potential questions and movement around the school.

3.12 Main study procedure

The main study procedure was informed by findings from the pilot study (discussed above). It used both multiple choice and verbal explanations to test participants’ ability to identify and explain verbal ambiguities in the punchlines of riddles.

Each participant was tested individually by the researcher in a room outside the classroom but within the school building. Participants who had a joke to share with the researcher (as suggested in the initial letter requesting consent for participation) related their joke as an initial ice-breaker. The researcher discussed what a riddle is with each participant and explained

that she was interested in finding out what kinds of riddles were understood by children in different Year Groups. It was emphasised that participants were not taking part in order to see if they could come up with a 'right' or 'wrong' response – rather that they were sharing their ideas/understanding about individual riddles and that the researcher would like to know more about what they thought as a child representative of their particular Year Group. A warm-up activity was carried out during which the researcher played the role of participant and chose a punchline from a selection of three and explained how the punchline made sense to her. This provided participants with a framework with which to explain the ambiguity by identifying an ambiguous word and then explaining the two possible interpretations. Each participant was then given a practice try themselves before the recording began. A riddle question was read aloud together with three potential punchlines. Participants chose whichever punchline(s) they thought made the question into a riddle (as opposed to a bona fide interrogative + answer exchange) and then had the opportunity to justify their punchline selection and to explain how the riddle had been understood. The researcher discussed the fact that she might well use the phrase 'And anything else?' as a prompt in the context of reminding participants that there might be an additional meaning to be explained but stressed that participants were not to feel pressurised if they had nothing further to add. Participants were given the opportunity to ask questions before the study began - and throughout its duration - and questions were answered in terms appropriate to each individual's own level of comprehension.

When the researcher was sure that each participant understood the activity she read out fifteen riddles, each with three punchlines (See Appendix 5). Both ambiguity type and position of original punchline were presented in random order - although the order was identical for each participant. The participants could hear any of the punchlines as many times as desired (although no participant asked for more than one repetition). Each participant chose a punchline and was then recorded explaining their understanding as to why that particular punchline had been chosen. When

a participant failed to fully explicate the punchline, the researcher used non-leading prompts to try and elucidate a fuller response. A frequent prompt was ‘And anything else?’ but on other occasions prompts linked to context (eg. ‘Can you explain what you mean by . . . ?’)

Participants were asked to indicate if they had heard any of the riddles before. When a riddle had been heard previously by a participant, an alternative riddle was supplied (again with a choice of three punchlines) based on the same type of ambiguity and which met all the other criteria for inclusion. When riddles were not understood, the researcher moved on to the next riddle. Upon completion of the task participants were thanked for their participation and for their help.

3.13 Data collection

The participants’ verbatim responses were recorded on a Tascam digital recorder and later transcribed for analysis. Any gestures (both deictic and iconic) that were made in support of – or instead of – a participant’s verbal explanation were noted at the time of the recording and were annotated in the transcriptions. Any words that were stressed significantly were underlined in the transcription. Transcriptions can be found in Appendix 7.

Multiple choice answers for each individual were simply recorded on paper as a 1, 2 or 3 for each punchline choice depending on whether participants had chosen punchline one, two or three dependent upon the chronological order in which they had appeared. These numbers were subsequently supplemented with an ‘0’ (original) ‘P’ (plausible) or ‘I’ (irrelevant) to indicate which type of punchlines had been chosen.

3.14 Analyses

Results were analysed both quantitatively and qualitatively and findings are recorded in the following chapter.

The quantitative analysis focused upon the number of original riddle punchlines correctly identified, and the verbal explanation scores, for each of the three participating Year Groups, and was used to address research

questions two and three, namely: RQ2 ‘To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?’ and RQ3 ‘To what extent does ambiguity type affect children’s proficiency in comprehending ambiguities in verbal riddles?’ Results were evaluated to establish trends in ambiguity comprehension across Year Groups and by ambiguity type. Findings were used to determine the extent to which understanding of children’s humour development could be furthered, specifically the final stage, and resulted in suggestions being made as to the way in which they could be used to refine the final step in McGhee’s 5-step framework of humour development. Links were also made between findings and statutory requirements as detailed in the new (2015) Primary Curriculum for the teaching of English in Wales, specifically those relating to oracy.

Qualitative analysis focused on the reasons participants gave for both target¹⁹ and non-target punchline selections. It examined the different means through which participants, previously untrained in disambiguation strategies,²⁰ conveyed their metalinguistic understanding. Identified communicative strategies were then used to develop comprehension criteria with which to determine the extent to which an ambiguity had been understood. These criteria were applied in the current study and can also now be duplicated in future studies of a similar nature.

3.15 Concluding comments

This chapter has described how the methodology for this study evolved. In addition to providing conventional methodological details, it has highlighted problems arising specific to this investigation and has detailed how these problems were addressed by the researcher.

These problems have been shown to have arisen due to ‘gaps’ in both the literature and in earlier studies, and the researcher has therefore had to

¹⁹ The riddle’s established punchline as intended by the author.

²⁰ Class teachers confirmed that no tasks of this nature had been carried out in the classroom previously.

consider how best to address these gaps in order to ensure that this study actually tested that which it purported to test. Three main problem areas have been identified as being in need of particular attention: (1) ambiguity definitions (2) mode(s) of comprehension testing and (3) comprehension evaluation.

The first of these problems was initially identified in the literature review (section 2.9.2) and relates to the current lack of established published ambiguity definitions with which to test children's humour comprehension. Analysis of earlier studies has revealed inconsistencies in the interpretation and application of discrete ambiguity types both within and across studies, which consequently makes it difficult to determine exactly which linguistic phenomena are being tested at any given time and to compare findings across studies. To address this issue the researcher has had to provide definitions for each ambiguity type tested. Each of these definitions has been shown to have been based upon the linguistic properties contained within the riddle form itself, ie. its actual wording (section 3.8.1). This addresses the first of the research questions in this study, namely 'In which way(s) can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children's humour comprehension?'

The second major problem highlighted in this chapter was that of how best to test children's humour comprehension, especially when receptive language skills outpace productive ones. Details have been provided to show the way in which this has been addressed in previous studies and how different test types each possess their own strengths and weaknesses. A multiple choice task and a verbal explanation task were both trialled in a pilot study and subsequent evaluation has shown how findings from the pilot study led to the two tests being combined in the final research design.

The third problem raised related to the lack of established criteria to which to refer when determining the extent to which an ambiguity had been comprehended by participants. This chapter has explained how this issue was addressed by the researcher and how a range of communicative

strategies were identified and accommodated in the research design in order to maximise opportunities for participants to communicate their understanding of ambiguities in riddle punchlines.

The chapter has concluded with details of main study procedure and the way in which data was collected in order for analysis and application as detailed in the following two chapters.

CHAPTER 4: RESULTS

4.1 Chapter Overview

This introductory section will first remind the reader of the aims of the study in order to contextualise the two research questions (RQs 2 and 3) specifically discussed within this results chapter.

To briefly recap, the aim of this study was to examine the different types of (British English) verbal ambiguities used in children's orally narrated riddles and to determine whether there were developmental stages during which children in Year Groups 2, 4 and 6 (aged 6-11) were able to comprehend different ambiguity types according to their linguistic properties. In tandem with the above, the new Programme of Study (a document detailing statutory requirements for the teaching of L1 English in Wales in state primary schools) was examined to determine whether links could be made between the findings here and statutory requirements, specifically those relating to oracy.

There were four main research questions. The first of these four research questions, 'In which way(s) can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children's humour comprehension?' has already been addressed in developing the methodology (see section 3.8.1) and the fourth research question will be answered in chapter 5 as it can only be dealt with once the two preceding research questions (2 and 3) have been addressed. Discussion of these two research questions, 2 and 3, namely:

RQ2 To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?

RQ3 To what extent does ambiguity type affect children's proficiency in comprehending ambiguities in verbal riddles?

are those which form the basis of this chapter.

Both research questions 2 and 3 aimed to determine how comprehension of humour develops between the ages of 6 and 11. Comprehension was measured receptively (through identification of an ambiguity) in a multiple choice task and productively (through explanation of an ambiguity) in a verbal explanation task.

Results in this chapter are evaluated both qualitatively and quantitatively. First (section 4.2) is the qualitative analysis of transcripts of participants' explanations for target²¹ and non-target²² punchline selections in order to establish the reasons behind punchline selections at different developmental stages. Transcript analysis also allows for the identification of strategies spontaneously employed by participants to communicate understanding of ambiguities. Identified strategies are used to develop comprehension criteria for application both within this study and for future studies within the field of children's humour development.

Results are subsequently analysed quantitatively for both the multiple choice and verbal explanation tasks in order to identify trends in punchline selections according to Year Group and to ambiguity type (sections 4.3 and 4.4). Results are recorded first for the multiple choice task and secondly for the verbal explanation task for each research question addressed in this chapter. Outcomes are compared to determine whether type of task affected results (section 4.5).

The chapter concludes (section 4.6) with tentative links being made between current findings and those of previous studies although, as earlier discussed, previous inconsistencies in ambiguity classifications make it difficult to draw definitive parallels. Results of RQ1 will hopefully overcome this limitation in future as the classifications as defined here are much more linguistically robust providing a secure platform for future comparisons.

²¹ A target response is an explanation which followed correct identification of original punchline.

²² A non-target response is an explanation which followed selection of a plausible or irrelevant punchline, rather than the original punchline.

4.2 Punchline explanations

As outlined above, results were analysed both qualitatively and quantitatively in order to address research questions 2 and 3. Quantitative analysis (specifically in relation to the verbal explanation task) could not be realised until qualitative analysis had been completed. This was because scores for participants' explanations needed to be provided by raters before any type of quantitative analysis could be carried out. In order to award scores for explanations, raters first needed to be provided with comprehension criteria to which to refer. Comprehension criteria were determined through examination of transcripts of participants' explanations for punchline choices. Each identified strategy used by participants to convey understanding of ambiguities was accommodated in the comprehension criteria provided for raters. These communicative strategies are discussed in detail in section 4.2.5, following an examination of the explanations given for different types of punchline selections made by participants in the verbal explanation task.

4.2.1 Original punchline explanations

Each participating Year Group correctly chose more original punchlines than any other type of punchline. This would suggest that participants were able to understand the concept of verbal riddling (see section 4.3 for further discussion). Examination of participants' explanations shows that the majority of explanations for original punchline selections supports this finding. Even the youngest participants in Year 2 were able to explain, to varying degrees, ambiguous words/phrases upon which riddles' humour was based (see Appendix 7 for full transcripts of participants' explanations). For example:

Riddle 13

Why can't you ever win at cards in the jungle?

Because there are too many cheetahs/cheaters (original punchline)

Participant 5: 'Because there was an animal called a /tʃi:tə/ and if you like (Year 2) cheat at a game you're called a /tʃi:tə/.'

Riddle 11

Why do leopards make rubbish thieves?

Because they're always spotted (original punchline)

Participant 21: 'Because the pattern on a leopard's body is spotted and
(Year 4) they're always spotted when they do crimes in the joke.'

Researcher: 'And what does that mean when they're always spotted
when they do crimes?'

Participant 21: 'Like the policeman always see seed them doing crimes.'

Riddle 12

Why did the schoolboy eat his homework?

His teacher said it was a piece of cake (original punchline)

Participant 52: 'I chose that one because (coughs) you a piece of cake
(Year 6) which you eat and the teacher used it as a saying meaning
a piece of cake as in easy.'

In fact, so familiar with the concept of verbal riddling were individual participants that their explanations showed them to have actively 'sought out' ambiguous wordplay in places where it was not originally intended.

For example:

Riddle 10

What do whales eat for dinner?

Fish and ships (original punchline)

Participant 35: 'Cos you know /weilz / there's there's an animal and it's our
(Year 4) country but I think it means meant by an animal and they
eat all tasty little creatures and when they eat it they they go
down and then that's what you mean by /weilz / and stuff.'

Researcher: 'Anything else?'

Participant 35: ‘Yeah and our country /*weilz* /²³ is like the same sounds the same as an actual animal whale.

(Substitute) Riddle 16

Why did the teacher wear sunglasses?

Because her pupils were so bright (original punchline)

Participant 43: ‘Cos there’s a **pupil** in your eye and **pupil** as in students and (Year 6) it’s a bit of like something where there it’s a cross reference.’

In both these examples participants concentrated not on the intended wordplay but instead focused on other words in the punchline(s) which had more than one meaning.²⁴ This reinforced the fact that participants understood the concept of riddling (making a joke by exploiting different word meanings) even though their focus was misdirected as regards the original intended wordplay.

On a small number of occasions (36 occasions = 6%) participants’ explanations suggested that correct (original) multiple selections had resulted from a chance selection or a lucky guess: “I just chose it randomly”, “Um I don’t know really”, “Er not sure” and “I just guessed” were all responses participants gave. One participant stated “I don’t understand that one” despite having made a correct punchline selection. In such instances it is possible that participants were incapable of ‘explaining’, rather than being incapable of ‘understanding’, but were unable to consciously differentiate between the two. It is also possible that guesses weren’t in fact guesses but that individuals found explanations too onerous to undertake – or else simply couldn’t be bothered to explain.

There were also a number of instances (39 occasions = 6%) when original punchlines appeared to have been chosen for reasons which made logical

²³ The study was carried out in a primary school in Wales.

²⁴ Although not necessarily in the context of these particular riddles.

sense to participants themselves – if not to the raters– rather than for the intended play upon ambiguous words/phrases. For example:

Riddle 2

Why was six afraid of seven?

Because seven ate/eight nine (original punchline)

Participant 8: ‘Well it’s cos they’re both odd numbers.’

(Year 2)

Riddle 11

Why do leopards make rubbish thieves?

Because they’re always spotted (original punchline)

Participant 29: ‘Because there’s sometimes sometimes frogs are spotted.

(Year 4) No and nothing else.’

On 10 occasions (2%), a correct original punchline choice was made but participants declined to give an explanation of any type. It was difficult in such instances to ascertain whether this was because participants had simply guessed at which punchline to choose or whether, as alluded to above, it was too difficult for participants to explain their understanding or they couldn’t be ‘bothered’. It was also possible that original punchlines might have been unknowingly chosen owing to some subconscious awareness of the ambiguous wordplay contained within the punchline but that participants were not yet cognitively/linguistically developed enough to be able to reflect consciously on the reasons behind their choice(s). The fact that original (correct) punchline selections were made even though participants did not – or could not – explain why they had made their choices, suggests that the explanation task might well have been too difficult for individual participants otherwise perfectly capable of identifying original punchlines. The explanation task required verbal output performance in order that comprehension be measured and as such, participants were unable to score from a performance guess. They could only be scored if they were judged

to have communicated one or more meanings of an ambiguous word/phrase. This then strengthens the argument for having included the multiple choice task in the investigation. The multiple choice task provided a means for participants to show that they were able to identify an ambiguity – even if they were not yet able to explain it.

In conclusion, whilst consistent correct ‘original’ punchline selections were taken to be evidence of ambiguity identification, the explanations that accompanied some of the selections indicated that, taken individually, it was not always possible to determine the extent to which a participant had comprehended a riddle on the basis of its intended ambiguous wordplay. On a small number of occasions (2%) participants either failed to provide any justification for selection or else claimed that they had guessed or didn’t know why they had chosen a correct punchline (6%). It was not always possible to determine whether their ‘not knowing’ or ‘guessing’ was simply due to random selection, or due to an inability to explain or reflect upon the linguistic phenomena in which the ambiguity was based. The majority of scored explanations nonetheless showed that participants were able to identify and communicate meanings of ambiguous words and/or phrases upon which a riddle’s humour was based and supported the findings from the multiple choice task.

Although original punchline explanations were the only ones to be scored²⁵ by raters they were not the only type of explanations to provide valuable insight into the ways in which participants made sense of riddles. Explanations relating to plausible and irrelevant selections also provided a rich source of data to help determine why participants had made non-target (ie. non-original) punchline selections and are discussed below.

4.2.2 Plausible punchline explanations

Plausible punchlines were those that treated the riddle interrogative as a bona fide request for information, as opposed to one intended to elicit

²⁵ Scored explanations were those which accompanied a correct original punchline selection and which were scored by raters – as earlier discussed in section 3.11.11.

humour. As further discussed in section 4.3, all three Year Groups primarily opted for ‘plausible’ punchlines rather than ‘irrelevant’ ones when original punchlines were rejected. Year 2 chose 118 ‘plausible’ punchlines compared with 33 ‘irrelevant’ ones, and Year 4 and Year 6 chose 34 and 18 ‘plausible’ punchlines respectively compared with 10 ‘irrelevant’ ones each (see table 1).

Therefore, although the total number of punchline choices was greatest for original punchlines, and indicated an understanding of the concept of verbal humour based upon exploitation of ambiguous words/phrases,²⁶ participants nonetheless showed a tendency to try and ‘make sense’ of a riddle question when rejecting the original punchline.

This finding is perhaps unexpected. Participants had already proved themselves familiar with the riddle genre, and the majority of their explanations showed that they understood humour to depend upon the perception of an incongruity, contained in the current context within an ambiguous word/phrase (see section 4.2.1). One might therefore have predicted participants to have selected irrelevant punchlines when overlooking original ones, simply because irrelevant punchlines, when paired with riddles’ interrogatives, were more likely to provide an incongruity – albeit it a conceptual one rather than a verbal one.

Both identification scores and explanations showed that this was not the case. More specifically, explanations revealed that when original punchlines were rejected, participants’ focus shifted from the identification of incongruities to the rationalisation of responses. Participants explained their plausible punchline selections by providing raters with logical reasons for their selections. For example:

Riddle 5

How did the banana know he was ill?

He had a high temperature (plausible punchline)

²⁶ As supported by the majority of scored explanations.

Participant 17: ‘Because sometimes when I get ill I know when I’m ill
(Year 2) because I have a tired and –ture temperature like I’m ill
right now.’

Riddle 7

Why did the jelly wobble?

Because someone shook the plate (plausible punchline)

Participant 59: ‘Because if you wobble the plate (mimes shaking object
(Year 6) from side to side) jelly goes up and down and up and down
so yeah then it wobbles.’

Although participants 17 and 59 chose plausible punchlines in the above examples and gave logical reasons²⁷ for having done so, they proved capable of identifying and explaining incongruities in the original punchlines of other riddles. Their explanations therefore show them to have switched back and forth between Raskin’s (1985) non bona fide (NBF) joking mode (see section 2.9.1) (in which a joke’s interrogative is treated as being intended to elicit humour) and bona fide (BF) communicative mode (in which a joke’s interrogative is treated as a serious request for information). It is difficult to determine exactly the reason behind the switch between NBF and BF modes, but it is possible that when participants were unable to identify an incongruity in NBF mode, they automatically returned to their BF default mode in which their over-riding need to make logical sense of the world around them prevailed (Piaget 1950).

It is also worth noting that, as reported above, most of the plausible punchline selections were made by participants in Year 2. These participants were at an earlier stage of cognitive development than those in Years 4 and 6. It is therefore possible that they were less adept at processing perceived incongruities when they found them to be ‘at odds with reality’ (McGhee 1979:61). This may in turn have inhibited their ability to ‘fantasy

²⁷ In relation to the riddle interrogative.

assimilate' incongruities in riddles' punchlines and led them to 'reality assimilating' (see section 2.4.1) instead, thereby resulting in their selecting more 'plausible' punchlines than Years 4 and 6. In addition, the school environment and the current culture of testing in primary schools might well have promoted a subconscious need for participants (across all Year Groups) to try and get the answer 'right', especially in instances when uncertain of the original punchline.²⁸

There is also the possibility that processing demands may have accounted, at least in part, for some of the plausible punchline selections. Plausible punchline selections were easier, and quicker, to process than those which contained an ambiguous word/phrase. Original punchlines, on the other hand, required more effort. They required participants to locate an incongruity in the form of an ambiguous word/phrase, to assign more than one meaning to a single form and to go back and forth between the two meanings in order to figure out how they both made sense within a single riddle – thereby exemplifying the skills required of stage five humour. Having to process an original punchline in this way placed additional cognitive and linguistic demands upon listeners than when processing plausible ones. It is therefore possible that, in addition to participants not being able to cognitively process ambiguities in this way, they might also on occasion have opted for the 'easier', less-challenging option when making punchline selections, especially when original punchlines were not readily obvious to them.

Although rationalisation of selections provided the basis for the majority of plausible punchline explanations there were, in common with original punchline selections, a very small number of instances (4 occasions = 2%) in which selections either failed to be provided at all, or where explanations were apparently chosen by chance ("Don't know [why] really") (10 occasions = 6%). As discussed above, however (in section 4.2.1), it was not

²⁸ The tasks were not introduced as tests to participants. It was explained there was no 'right' or 'wrong' answer – rather that the researcher was interested in which punchlines they chose as representative for their particular Year Group.

always possible to determine the degree to which choices had been made by chance or had in fact been knowingly made even though participants were unable to consciously explain or reflect upon the reasons behind their selection choices.

4.2.3 Irrelevant punchline explanations

Irrelevant punchlines were those that treated the riddle interrogative neither as a bona fide request for information, nor as an attempt to elicit humour through manipulation of linguistic properties. As already suggested above, one might have anticipated that ‘irrelevant’ punchline choices would outnumber ‘plausible’ alternatives in instances where the original punchlines were rejected. Irrelevant punchlines might conceivably have been perceived as being humorous when paired with riddles’ interrogatives, not necessarily for the ambiguous wordplay contained within, but for being conceptually humorous (ie. from potential incongruities residing in any interrogative/declarative mismatch). This was not the case however. Irrelevant punchlines were chosen least frequently by all three Year Groups (see section 4.3.1), although a small number of explanations did indeed indicate that they were chosen on the basis of some type of conceptual incongruity, eg.:

Riddle 6

What does Spiderman do when he’s angry?

He turns on the radio (irrelevant punchline)

Participant 51: ‘I just think it sounds a bit funny that Spiderman would turn
(Year 6) on the radio when he’s angry.’

Researcher: ‘And anything else?’

Participant 51: ‘No not really.’

Riddle 12

Why did the schoolboy eat his homework?

His mum liked singing in the bath (irrelevant punchline)

Participant 20: 'Because it's funny.'

(Year 2)

Researcher: 'And why do you think it's funny?'

Participant 20: 'Because mum singing in the bath is really funny.'

there were other instances (10 times = 19%) whereby participants, despite having chosen an irrelevant punchline, rationalised their choices, much as they did for plausible punchline selections (see section 4.2.2). For example:

Riddle 4

Why are babies good at football?

Because they like music (irrelevant punchline)

Participant 17: 'Because sometimes I put on music on when I was a little
(Year 2) one and really was a ball next to me so I was moving so
much I actually kicked the ball.'

As with original and plausible punchline selections, irrelevant punchlines were also, on a small number of occasions, either chosen without any accompanying explanation (7 occasions = 13%), purportedly as the result of a guess (6 occasions = 11%) "Not a clue", or were chosen because they apparently made obvious sense to individual participants, if not the raters (20 occasions = 38%). For example:

Riddle 13

Why can't you ever win at cards in the jungle?

Because it snows on the mountains (irrelevant punchline)

Participant 20: 'It's because when it snows on the mountains the you can't
(Year 2) get onto the other side you have to zig-zag your way up.
You you have your you have skis and then you you get you
sk- walk and then when you get to a corner you walk again
and then you walk another corner.'

Riddle 10

What do whales eat for dinner?

Big earrings (irrelevant punchline)

Participant 19: ‘Because big earrings a whale is so big a big earring would
(Year 2) nearly touch the inside of him so when he eats it he will it
will go straight down.’

Responses such as the above highlight the fact that each participant brought his individual perspective to the task. Some perspectives were more difficult to access than others in terms of relating their logic to the ambiguous language and intended wordplay contained within the punchline(s). Others however made perfect sense – though they might not immediately have been the perspectives most obvious to an adult’s way of thinking as discussed further below.

4.2.4 A child’s perspective

The original punchlines used in this study were pre-determined either by established oral or written forms. The two remaining types of potential punchlines – plausible and irrelevant – had been devised by the researcher and had been trialled on two other adult independent researchers in order to ascertain whether they really were ‘plausible’ or ‘irrelevant’ in relation to the riddle question. The aim was to ensure that none of the potential ‘irrelevant’ punchlines could be interpreted as being ‘plausible’ (and vice versa). All researchers concurred with the classification of the final punchlines used in the study and all concurred that they were age appropriate. Findings from the pilot study verified the appropriacy of riddles both in terms of age suitability and original/plausible/irrelevant classifications. There was however a single substitute riddle (not called upon in the pilot study), the ‘irrelevant’ punchline of which was treated as being ‘plausible’ by four individual participants. This was the riddle:

Riddle 28

Why was the gnome told off by his mother?

He was very naughty (plausible punchline)

He was goblin/gobbling food (original punchline)

He was too tall (irrelevant punchline)

In terms of plausibility, it is probable that an adult would select ‘He was being naughty’ as the most apt response to a bona fide request for information in the above riddle’s interrogative. This was not the case however for all participants. More participants chose the irrelevant punchline than the plausible punchline for this specific riddle (four participants as opposed to two) which was out of keeping with the general trend in punchline selections (see section 4.3). Analysis of their explanations revealed however that they *were* in fact treating this punchline as *plausible* rather than *irrelevant*. Whilst one participant claimed not to know why he had chosen the ‘irrelevant’ punchline for this particular riddle, the other three participants gave the following explanations, all of which focused on the size of the gnome:

Participant 21: ‘Cos gnomes are supposed to be really really small in your
(Year 4) garden. You have like the um gno- garden gnomes and his
mother was telling him off cos he was too tall.’

Participant 35: ‘Cos gnomes are usually really small and because they’re
(Year 4) all the same height kind of thing and he that one is just a bit
taller and they want them to be smaller so kind of thing.’

Researcher: ‘Ok. Anything else?’

Participant 35: ‘Um yeah because you know when gnomes they sit in your
back garden and then they’re like that small so . . .’

Researcher: ‘Yeah?’

Participant 35: ‘And then you’re taller and then it the that gnome was like
massive so trying to make him go tell him off because
you’re too tall kind of thing.’

Participant 49: 'I chose that one because I thought like the mother might be (Year 6) smaller than like talling telling him off because he's too tall.'

Researcher: 'And anything else?'

Participant 49: 'No.'

For those inhabiting a world where giants, fairies and pixies still play an active role it appeared perfectly conceivable that a goblin should know his place and not upset the status quo by being disobedient and growing too tall. Viewed from this perspective the 'irrelevant' response can indeed be seen as being 'plausible'. It is unlikely however that an adult would automatically make the same choice based along the same lines of reasoning.

Since this 'substitute' riddle was used only when an original syntactic riddle was already known to participants – and was interpreted in the above manner on only three occasions – it did not affect overall findings relating to punchline choices.²⁹ It nonetheless served as an opportune reminder of the different way(s) in which children and adults view the world and the differing perspectives both sets of individuals bring to such tasks.

4.2.5. Strategies used to communicate understanding

Transcripts of explanations not only revealed the different perspectives brought to the multiple choice and verbal explanation tasks by individual participants, but also highlighted the different communicative strategies participants were using to communicate these perspectives.

The current study had always intended to accommodate the different ways in which comprehension was communicated by participants in the verbal explanation task. It had anticipated, however, that, in addition to analysis of strategies employed here by participants, there would be previous published comprehension criteria to which reference could be made – especially given the number of previous studies carried out on children's humour

²⁹ Participants' communications revealed this to be the only irrelevant punchline treated as plausible in this way.

comprehension. This was not the case. Therefore, although it was not an initial aim of the study, qualitative analysis of explanations, in addition to examining the reasons for punchlines selections, also had to allow for the development of detailed comprehension criteria in order to accommodate the different ways in which participants communicated their understanding of ambiguities. Without this comprehension criteria, RQs 2 and 3, as later discussed in this chapter (sections 4.3 and 4.4), could not have been addressed. These comprehension criteria, based upon strategies identified below, were used by raters (see Appendix 6) to award scores in the verbal explanation task.

The pilot study had already established that participants were able to communicate their understanding of ambiguities in a variety of different ways, both verbal and non-verbal, and this held true for the main study. Participants used a range of different strategies to communicate their understanding of the meanings of ambiguous word(s)/phrase(s). Some strategies were used to explain all ambiguity types, whilst others were particular to discrete categories depending upon the types of linguistic phenomena that were being manipulated to exploit ambiguous meanings.

Identified strategies comprised one of two different types – those used contrastively to communicate two meanings and those used to communicate single meanings only. Each type of strategy was accommodated within the comprehension criteria provided for raters and is discussed more fully below.

4.2.5.1 Strategies used to communicate two meanings

Three discrete strategies used contrastive techniques to communicate both potential meanings of an ambiguous word/phrase. These involved (1) direct reference to/comparison of phonemes (section 4.2.5.1.1), (2) manipulation of juncture (section 4.2.5.1.2) and (3) word stress (section 4.2.5.1.3). All three strategies were used for ambiguities that involved the manipulation of sounds ie. phonological and morphological ambiguities. (1) was a strategy exclusively used to explain phonological ambiguities and (2) was a strategy

exclusively used to explain morphological ambiguities. (3) was a strategy used to explain both phonological and morphological ambiguities. (3) was also used non-contrastively to communicate single meanings across all ambiguity types (see section 4.2.5.2.3).

4.2.5.1.1 Reference to phonemes

The first contrastive strategy employed by participants was exclusive to explanations relating to phonological ambiguity. This strategy involved participants either:

- 1) making specific reference to phonemes which, having been substituted, consequently altered the meanings of word(s) upon which the ambiguity hinged

or

- 2) indirectly indicating awareness of phoneme substitution by drawing attention to the contrastive nature of two similar sounding words.

For example:

Riddle 5

How did the banana know he was ill?

Because he wasn't peeling well (original punchline)

Participant 38: 'Well because um you can peel a banana an- and um (Year 4) they've kind of changed the 'f' to a 'p' so it sounds like he wasn't peeling well instead of he wasn't feeling well.'

Participants also alluded to the fact that pairs of words, their phonemes having been substituted, sounded similar to each other. They did so by describing pairs of words as 'rhyming' (7 times) with each other (eg. "because peeling rhymes with feeling") or by making reference to words which 'sounded' alike - or resembled - each other (8 times) (eg. "peeling sounds like feeling", "ships is a bit like chips"). In such instances, even though participants did not make explicit reference to the actual *meanings* of ambiguous word(s), the very fact that they were able to draw upon the

alternative potential meaning of words which did not themselves actually appear in the punchline (ie. by mentally substituting the relevant phoneme) suggests that both of the ambiguous meanings had been identified (eg. “because it’s **feeling** and then it’s changed to peeling”, “instead of **chips** it’s ships”, “cos there’s a game called hide and **seek** and they just changed it to hide and squeak”).³⁰ This contrastive strategy thus allowed participants to exhibit their phonological knowledge whilst simultaneously showing their ability to identify both meanings of an ambiguous word/phrase.

4.2.5.1.2 Manipulation of juncture

The second contrastive strategy employed by participants was exclusive to explanations relating to morphological ambiguity. This involved participants using contrastive differences in juncture (the timing and pause length between utterances) to distinguish between two otherwise identical sequences of sounds that differed in meaning. Participants consciously manipulated the length of hesitation pauses (exaggeratedly so) to differentiate between a single compound word and a sequence of discrete words. Purposive inter-lexical pauses were used to focus attention between two different morphological constructions. For example, ‘milk shake’, transcribed as such, indicated that a participant had made a perceivably longer pause between the words ‘milk’ and ‘shake’ (to indicate a noun + verb construction) than they had for ‘milkshake’, transcribed as such, to denote no perceptible pause between ‘milk’ and ‘shake’ (to indicate a compound noun construction):

Riddle 7

Why did the jelly wobble?

Because it saw the milk shake/milkshake (original punchline)

Participant 21: ‘Because it’s a **milkshake** you shake it and then the um oh

³⁰ Highlighted words did not appear in punchlines but participants were able to mentally draw upon them.

(Year 4) whatch- um the blender and it makes like um the milk the **milk shake** and the jelly usually wobbles and he saw the **milk shake** so he wobbled.’³¹

Deliberate inter-lexical juncture variation of this nature was used thirteen times in total by participants and was taken to be indicative of comprehension of the two different meanings of ambiguous word(s)/phrase(s).³²

4.2.5.1.3 Word stress

The third and final contrastive strategy used by participants was that of word stress. Word stress involved participants deliberately articulating individual words so that they varied notably from conventional stress patterns. When participants employed this strategy to highlight differences in meaning(s), they tended to do so very theatrically as if over-exaggeration would ensure that the researcher would not miss their underlying intention(s) in doing so.

Given that word stress itself relies on manipulation of sound (ie. changes in pitch, loudness, vowel length and articulation), it is not surprising that this particular strategy was used most frequently for ambiguity types that involved the distortion or manipulation of sounds. It was used 23 times for phonological ambiguity and 24 times for morphological ambiguity. In each case stress was used contrastively to draw attention to two similarly sounding words or constructions which formed the basis of the ambiguous wordplay. Explanations relating to phonological ambiguity used word

³¹ Words have been highlighted in this example to accentuate differences in juncture. They were not highlighted in the transcriptions provided for scorers. Raters were informed that transcriptions indicated differences in juncture but it was up to individual raters to determine whether they judged juncture to have been used to differentiate between meanings.

³² Pause measurement was beyond the scope of the study but the raw data was made available to raters.

stress to highlight a contrast in phonemes whilst explanations relating to morphological ambiguity used word stress to highlight the shifting of word boundaries (together with a variation in juncture). For example:

Riddle 5

How did the banana know he was ill?

Because he wasn't peeling well (original punchline)

Participant 22: 'Because it was meant to be feeling well because it's a
(Year 4) banana peeling.' (Shrugs)

Riddle 14

When are roads angry?

When they are cross roads/crossroads (original punchline)

Participant 48: 'Um I chose that one because like you can have crossroads
(Year 6) as in like an actual cross road and then the road could get
crossed cos of that.'

Although word stress was used contrastively to communicate two discrete meanings of a phonologically or morphologically ambiguous word/phrase, this particular strategy differed from the other two contrastive strategies (ie. 'reference to phonemes' and 'manipulation of juncture') in that it was not exclusive to ambiguities dependent upon manipulation of sound. Word stress was, in common with the other strategies discussed below, applied to communicate understanding of all types of ambiguity tested.

4.2.5.2 Strategies used to communicate individual meanings

Whilst contrastive strategies, discussed above, afforded participants a single means with which to accommodate, and communicate, both meanings of an ambiguous word there were further strategies used by participants to communicate *individual* meanings of ambiguous words/phrases. These strategies were used across all ambiguity types and are discussed below.

4.2.5.2.1 Word definitions

A standard means of communicating understanding of a word's meaning involved participants providing a target definition (or explanation) of word meaning(s.) For example:

Riddle 2

Why is six afraid of seven?

Because seven eight/ate nine (original punchline)

Participant 42: 'Because um when they say seven /*et*/ nine it's saying
(Year 6) that seven um starts eating other numbers but then /*et*/ is
also the number after seven so they said seven /*et*/ nine.'

Explanations such as the one above were straightforward to score. There were however explanations that did not contain definitions but where participants were nonetheless able to communicate understanding of one or more ambiguous meaning(s). These alternative strategies are examined in more detail below.

4.2.5.2.2 Examples of words in context

A popular means of communicating a word's meaning was to use context. In such instances participants did not necessarily define or explain a word's meaning but communicated understanding by providing an example of its meaning in a relevant context. For example:

Riddle 13

Why can't you ever win at cards in the jungle?

Because there are too many cheetahs/cheaters (original punchline)

Participant 11: 'Because /*tʃi:etəz*/ cheat.'

(Year 2)

Researcher: 'What does that mean?'

Participant 11: 'Because it means say if I had snakes and ladders I already had a go I would roll it. I would probably just say 'Can I

have the dice for a sec?', turn around, get it to number six and go 'Yay I got a six' and then leave my counter on there.'

Researcher: 'And -'

Participant 11: 'I do that with my mummy and daddy.'

Researcher: 'And anything else?'

Participant 11: 'No.'

Participant 18: 'Because they might be looking at the other people's ones (Year 2) and just um say stealing their one and say have the king and I have the queen and all sorts, eh.'

Researcher: 'And anything else?'

Participant 18: 'Yeah because as they keep on doing it they just win every time and everyone will get annoyed with them.'

In the above examples, the ambiguity in the punchline, when delivered orally, lies in the homophone cheater/cheetah. Although participants did not define the meaning of the word 'cheater' in terms of 'an individual who acts dishonestly in order to gain an advantage at something', they nonetheless both provided examples of familiar activities - 'Snakes and Ladders' (a board game popular with young children) and playing a round of cards - in which individuals are seen to be acting dishonestly (ie. cheating) in order to achieve victory. Whilst there is no explicit reference made to the meaning of the original word 'cheater' as in a 'dishonest individual' in these explanations, participants were nonetheless judged by all three raters to have comprehended the meaning of 'cheater' since they had communicated its meaning through contextual illustration.

Context was used as both a standalone strategy and as a means of supporting other strategies. In total, it was used 400 times across all ambiguity types to support communication of a word's meaning(s), making it the most widely applied strategy of all those employed by participants.

4.2.5.2.3 Word stress

Word stress was another strategy used across all ambiguity types. As discussed in (section 4.2.5.1.3) the present investigation considered words to have been stressed deliberately by participants when they varied notably from conventional stress patterns.

Word stress was used not only to focus attention on ambiguous words/phrases but was also placed on conjoining words such as ‘and’ and ‘because’. Instances of stress on conjunctions often served to either indicate that explanation of another meaning would be forthcoming (eg. ‘and’) or served as a brief interlude whilst thoughts were gathered as to how a meaning might be explained (eg. ‘because’). Of particular relevance to this study however were instances where word stress was used specifically to direct focus to an ambiguous word/phrase, its meaning or a synonymous equivalent.

As earlier discussed (section 4.2.5.1.3) word stress was employed most frequently for explanations relating to phonological and morphological ambiguities (23 and 24 times respectively) where it was used to contrast differences between two potential meanings. Use of word stress varied according to ambiguity type however. In explanations relating to lexical, syntactic and idiomatic ambiguities, word stress was used to focus attention on individual lexemes and meanings as in the example below:

Riddle 12

Why did the schoolboy eat his homework?

Because his teacher said it was a piece of cake (original punchline)

Participant 23: ‘Well some people say it’s a piece of cake as something like (Year 4) it’s really easy and I think the boy’s mm- th- thought he she meant it’s a tasted like a piece of cake.’

Word stress was used to focus attention on individual lexemes and meanings in this way thirteen times for explanations relating to syntactic ambiguity, seven times for lexical ambiguity and six times for idiomatic ambiguity.

4.2.5.2.4 Inflections and derivations

A further strategy used by participants to support communication of a word's meaning(s) was to use inflections/derivations of word roots of ambiguous lexical items to create new words which in turn illustrated understanding of the original root word (eg. cheater → cheat, cheats, cheating, cheated). For example

Riddle 13

Why can't you ever win at cards in the jungle?

Because there are too many cheetahs/cheaters (original punchline)

Participant 41: 'Cos there are /tʃi:etəz/ in the um jungle.'

(Year 6)

Researcher: 'What what is a /tʃi:etə/ in the jungle?'

Participant 41: 'It's an animal and **cheat**³³ is you **cheat** at something.'

Participant 48: 'Cos in the jungle there's lots of /tʃi:etəz/ and um like ...'

(Year 6)

Researcher: 'Can you tell me what /tʃi:etəz/ are?'

Participant 48: 'Well they're like you in in card games you have /tʃi:etəz/ **cheating**. Somebody **cheats**.'

In the above examples the word 'cheater' is neither clearly defined nor fully explained yet participants were nonetheless able to create and use the forms 'cheat' 'cheats, and 'cheating' appropriately. None of these forms appeared in the original punchline which indicates that participants were not only able to comprehend the meaning of the original word 'cheater' (as it appeared in the punchline) but were also able to manipulate language - in terms of

³³ Words in bold did not appear in the original riddle interrogative or punchline but were used by participants.

person, tense, word class - in order to communicate their understanding of a word's meaning. In the absence of word definitions this demonstrated an advanced means of language manipulation in order to communicate understanding of a given meaning.

The use of derivatives and inflections to support communication of a word's meaning(s) was applied least for explanations dependent upon morphological ambiguity (28 times). However this strategy was used with high frequency across all other ambiguity types: 61 times for lexical ambiguity, 62 times for idiomatic ambiguity, 72 times for phonological ambiguity and 75 times for syntactic ambiguity. In total, this strategy was used 298 times by participants.

4.2.5.2.5 Indirect evidence of comprehension

A less obvious means of communicating comprehension of a word's/phrase's meaning(s) was one where participants gave an answer that showed indirect evidence of comprehension of one or more meanings of an ambiguous word or phrase - even though the word/phrase containing the ambiguity was not directly referred to. For example:

Riddle 9

When is the best time to buy chickens?

When they're going cheap/cheep (original punchline)

Participant 44: 'I chose that one because chickens can go like /tʃi:p/ /tʃi:p/ (Year 6) and a /tʃi:p/ um chicken would be quite good for Christmas dinner.'

Researcher: 'And why would a /tʃi:p/ chicken be good for Christmas dinner?'

Participant 44: 'Because you don't cos then you have more money to spend on presents.'

In the above example the inference is that there would be more money to spend on presents if the chicken bought for Christmas dinner were 'cheap' (ie. did not cost a lot of money). Whilst the meaning of 'cheap' is not

explicitly stated it seems highly probable that this mental evaluation was made by the participant before his concluding that if you buy this type of chicken then you will ‘have more money to spend on presents’. The fact that the meaning of ‘cheap’ is only implied however means that any assessment as to whether the participant had comprehended the meaning of the word was, as with all explanations to varying degrees, subjective. All three raters agreed that this participant had comprehended the meaning of both ‘cheep’ and ‘cheap’ and he was scored accordingly.

4.2.5.2.6 Identification of idiomatic phrases

Riddles dependent upon idiomatic ambiguity demanded a specific type of linguistic knowledge, that of being able to identify the conventionalised figurative meanings of formulaic expressions in addition to their literal interpretations. Some participants were able to identify the formulaic expressions that had been used and were able to explain their figurative meanings using a variety of the strategies discussed within this section. Other participants however, were able to identify idiomatic phrases as having been exploited as the basis of deliberate punning but were unable to explain their figurative meanings fully. For example:

Substitute Riddle 33

What happens to a witch when she loses her temper?

She flies off the handle (original punchline)

Participant 21: ‘Because flying off the handle is a phrase and the witch (Year 4) flies on a broom and she flies (laughs) off the handle.’

Researcher: ‘And do you know what that phrase means?’

Participant 21: ‘Um no but I’ve heard it before.’

In such instances, although participants were unable to explain the figurative meanings of fixed idiomatic expressions, the fact that they were capable of identifying an instance of a figurative meaning being deliberately contrasted with a literal meaning in order to produce a humorous effect, suggests that they were able to understand the basis of the intended pun. Although

participants may not have been able to explain the idiom's meaning, they were nonetheless able to identify the idiomatic unit as possessing a meaning which differed from that of the cumulative meaning of its individual lexical components. Participants recognised idioms as 'saying[s]', 'phrase[s]' and 'term[s]' upon which wordplay was based even though they were not always able to explain what the 'term' or 'saying' meant.

4.2.5.2.7 Gestures

In addition to communicating understanding verbally, physical communication was also used by participants in the form of gestures. Gestures were used not only to communicate the meanings of ambiguous words and phrases but also to communicate interactively with the researcher administering the task. Participants often shook their heads or shrugged their shoulders to communicate that they were unable to think of anything to say or to indicate that explanations had come to an end. These gestures were annotated in the transcripts but they were not included in the final analysis which focused specifically on the use of gesture(s) to support communication of one or more of the ambiguous meanings contained within punchlines.

Almost half of the participants (28 out of 60) used gestures to support explanations of word meanings. Hence gestures were a useful communicative tool. Those participants that did use gestures used them once, twice or three times at most. The only exception to this rule was one participant in Year 6 who used gestures 8 times in total. Of the 52 gestures recorded 7 were used in place of a verbal explanation. The remaining 45 gestures were all used as a supplementary strategy and accompanied participants' verbal explanations.

Given that participants were being asked to negotiate cognitively demanding material, it might well have been anticipated that the youngest participants, likely to be least (meta)/linguistically developed, would have resorted to using more gestures in order to help convey their understanding of meanings than the older participants. This would have been in keeping with the

findings of Kidd & Holler (2009) who, in their investigation of 3-5 year olds' use of gesture to resolve lexical ambiguity, found that older children relied less on gesture than their younger counterparts when required to verbally disambiguate between meanings of homonyms. In the current study however the inverse was found to occur. The youngest participants in Year 2 used only 4 gestures throughout the whole study, whereas the participants in Year 4 used 16 and the oldest participants in Year 6 used 32. Year 2 used gestures 1.3% of the time compared with 5.6% by Year 4 and 10.9% by Year 6.

It must be noted, however, that as Year Groups increased and more original punchlines were correctly selected, participants were engaged in explanations based upon types of ambiguity arguably more complex than lexical ambiguity (the only type tested by Kidd & Hodder 2009). As such, it might be assumed that the additional cognitive and linguistic demands placed upon participants prompted them to resort to supplementary means, in this instance gestures, in order to convey increasingly complex concepts when words alone were insufficient. Whilst this would have supported the finding of Alamillo, Colletta & Guidetti (2013), this was not the case in the current study. The number of times gestures were used for each ambiguity type were as follows:

Lexical ambiguity – 23 times

Morphological ambiguity – 16 times

Syntactic ambiguity – 5 times

Idiomatic ambiguity – 5 times

Phonological ambiguity – 3 times

As the above figures show, gestures were used mostly to accompany explanations regarding lexical ambiguity (on 23 occasions). There was, however, one riddle in particular which contributed to this finding. This was riddle 4: *'Why are babies good at football? Because they can dribble.'* Explanations for choosing this riddle's original punchline were accompanied by 18 gestures in total with participants using either a deictic

gesture (to point to their mouth to indicate saliva trickling) or an iconic gesture (to indicate a footballer keeping control of a ball through a series of small manoeuvres).³⁴

Both the meanings of the ambiguous word, 'dribble', were verbs in this instance, and verbs were in fact the class of word for which gestures were predominantly employed. Gestures were used to indicate both babies and footballers dribbling, milk being shaken, carpenters sawing, bananas being peeled, footballers dancing and Spiderman climbing up a wall. Even when one or other of the ambiguous meanings took the form of a noun or noun phrase, 'action' gestures were often used to convey meaning. Participants used hands to indicate a bird's beak opening and closing to indicate what 'cheep' meant. They mimed the eating of an object to differentiate between 'chips' and 'ships' and to demonstrate the literal meaning of a 'piece of cake'. Likewise the twisting of a screwdriver was used to communicate the literal interpretation of a 'screw loose'. In total, verb-accompanying gestures were used 43 times and were used across all ambiguity types.

Gestures were used far less frequently to indicate the meanings of nouns/noun phrases. One participant did a mime to convey a skeleton's floppy body and all other noun-accompanying gestures related to the communication of the meaning of 'crossroad' (7 occurrences). Only once was a gesture used to indicate the meaning of an adjective – a participant pulled a 'cross' face in order to convey the meaning of 'angry'.

Although gestures were used most frequently to communicate verb meanings, there were in fact over twice as many noun meanings contained within the ambiguities that appeared in riddle punchlines. The 30 meanings contained within ambiguous words/phrases comprised: 3 x idiomatic meanings, 3 x adjectival meanings, 7 x verb meanings and 17 x noun meanings. Gestures were used once to communicate an adjectival meaning, 43 times for a verb meaning and 8 times for a noun meaning.

³⁴ The other five instances of gestures being used for lexical ambiguity explanations were spread across 4 different riddles.

Part of the reason for this finding may lie in the fact that verbs are in general more intrinsically ‘physical’ in nature than other word classes, which meant that participants may have found it easier, or more natural, to express their meanings kinesthetically. The fact that children tend to learn actions associated with verbs before lexical representations (Childers & Tomasello 2006) also means that this strategy is one that is deeply rooted, especially when English-speaking parents tend to request infants to *act out* verb meanings when first teaching them new words, but to *repeat* noun labels (Goldfield 2000). It may well have been then that participants were more used to acting out verb meanings than they were nominal or adjectival ones.

The use of gesture as a communicative tool now brings to a close this section on strategies spontaneously employed by participants to communicate understanding. The wide range of strategies, both verbal and non-verbal, identified and discussed within this section provides valuable insight into the different ways in which young children are able to communicate their understanding of ambiguities, especially when receptive skills lag behind productive ones. As earlier explained, these identified strategies, in the absence of any previous published criteria, were used to inform methodological decisions relating to the development of comprehension criteria for application in the current investigation. Without these criteria it would not have been possible to address RQs 2 and 3, as discussed below (sections 4.3 and 4.4). The identification of comprehension criteria reduced the subjectivity of scores and allowed for consistency in what constituted communication of comprehension of an ambiguity. Although identified strategies were particular to this specific study they can now be applied in future studies of a similar nature. They can also be used more generally to inform classroom practice, specifically in relation to listening assessment based upon communicative response. This matter is further discussed in section 5.6.2 following quantitative analysis of findings below in relation to research questions 2 and 3.

4.3 RQ2: To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?

4.3.1 The multiple choice task: identifying ambiguities

As outlined in chapter 3, a multiple choice task was used to test children's ability to identify the target (ie. original) punchline in verbal riddles. Each original punchline in the task relied upon ambiguous use of language to elicit humour and contained one of five different types of ambiguity: lexical, phonological, morphological, syntactic or idiomatic. Each original punchline was presented to participants following a riddle interrogative and was accompanied by (a) a plausible punchline which treated the riddle interrogative as a bona fide request for information and (b) an irrelevant punchline which neither treated the riddle interrogative as a bona fide request for information, nor was aimed at eliciting humour through manipulation of linguistic properties. The three different types of punchlines (original, plausible, irrelevant) were presented in random order (see Appendix 5), although the order of presentation was identical for all participants.

There were 15 riddles in total (see Appendix 5), which means that each participant had to select 15 separate punchlines individually. There were 20 participants in each Year Group for a total of 60 participants. The total selections for each punchline type made by participants are shown in table 1 below.

Table 1. Multiple choice punchlines chosen by Year Groups

	Year 2	Year 4	Year 6	Total
Original Punchline Chosen	147 (49%)	241 (80%)	265 (88%)	653
Plausible Punchline Chosen	118 (39%)	34 (11%)	18 (6%)	170
Irrelevant Punchline Chosen	33 (11%)	10 (3%)	10 (3%)	53
Total	298	285	293	876

As table 1 shows none of the participating Year Groups was able to correctly select the target (ie. original) punchline for all 15 riddles. None of the participants in Year 2 selected all 15 original punchlines correctly. Two participants in Year 4 (10%) and four participants in Year 6 (20%) chose all 15 correct (original) punchlines. In terms of correctly selecting the original punchline, these results show that proportionately the percentage of participants who chose all original punchlines correctly increased with ascending Year Groups and therefore with age. This progression is not particularly informative since it is what one would have predicted but it is the detail found in the responses (and non-responses) that is revealing, as is now shown.

4.3.1.1 Non-responses

Each Year Group's total multiple choice correct selections (20 participants x 15 multiple choice punchlines) had the potential to total 300. There were some instances of non-response, however. As can be seen in table 1, this happened twice in Year 2, fifteen times in Year 4 and seven times in Year 6. Therefore Year 2, the youngest Year Group, had the fewest instances of non-response, which meant that they made more punchline selections than either of the two older Year Groups. Although there were no directly

identifiable reasons for this, it might well be that the younger participants were less concerned with losing face and more willing to take a risk (Ceci & Friedman 2000) and have a guess than the older participants in Years 4 and 6, regardless of whether they were able to identify the ambiguity or not. This line of reasoning assumes that participants were able to recognise the fact that they were unable to identify an ambiguity but were open to having a guess nonetheless. This need not necessarily have been the case, however. Subsequent analysis (see sections 4.3.1.2 and 4.4.2) found participants in Year 2 less capable of identifying and explaining ambiguities than those in Years 4 and 6 so it may well have been that participants in Year 2 were, on occasion, unaware that they had made a non-original punchline selection. Happy that they had understood the riddle (at their own level), they might not have felt any need to protect themselves from losing face, since in their own eyes they had made the 'correct' punchline choice anyway.

In contrast to Year 2, Year 4 had the highest number of non-responses. Thus it is possible that as participants developed their ability to identify, reflect upon and explain ambiguities, they were becoming increasingly conscious of ambiguities which they were (and were not) able to identify. When 'aware' that they were unable to identify which of the punchlines was the original one, the threat of losing face might have prevented some participants from taking a risk and guessing at a riddle's original punchline. The study was carried out in a school environment in which testing plays an increasingly large role and the need to 'get the right answer' is highly ingrained, despite it not being an objective in the current study.

Year 6, the oldest Year Group, had more non-responses than Year 2 but fewer than Year 4. Hence there was no steady pattern in the number of non-responses across Year Groups. Whilst the youngest participants (Year 2) had the least number of non-responses, the middle Year Group (Year 4) had over twice as many non-responses as the oldest Year Group (Year 6) - 15 non-responses as opposed to 7. Closer examination revealed that there were three participants in Year 4, each of whom declined to make a punchline selection on three occasions. Other than these three participants, no other

participants declined to make a punchline choice this number of times. A single individual in Year 4 and another in Year 6 made two refusals but all other refusals to select a punchline were made once only by individuals. Hence the three participants in Year 4 who each declined to make a punchline selection on three occasions are likely to have affected this outcome. The overall Year Group results did not reflect this individual variation in relation to non-responses, but this was a factor that necessarily had to be accommodated within the current study.³⁵ Tasks were aimed at investigating and applying findings to ‘typical’ Year Groups rather than to individuals (see section 5.5.2). In addition, it is also the case that Year 6 had less opportunity to make non-responses than Year 4 simply because they were able to select more original punchlines correctly.

4.3.1.2 Recorded responses

Whilst there was no pattern in terms of non-responses, this was not the case for positive selection responses. As table 1 shows, Year 2 made 147 correct (original) multiple choice punchline selections, Year 4 made 241 and Year 6 made 265. A chi square test was performed to determine whether the difference in multiple choice selections by Year Groups was significant. A relationship was found between punchline selections and Year Groups: ($\chi^2(4) = 155.4, p < 0.01$). There was therefore a significant difference (in this case an increase) in correctly identified original punchlines by each ascending Year Group.

The increase in correct (original) punchline identification rates by ascending Year Groups was as expected, given participants’ general cognitive stages of development. Participants ranged from 6-11 years and were of an age during which considerable cognitive, linguistic and metalinguistic development takes place. Given that these types of development do not appear overnight but are incremental during a child’s time at primary school (and beyond), one might ordinarily predict that the ability to identify verbal ambiguities might also increase incrementally with age. There was,

³⁵ Individual variation is discussed more fully in section 5.5.2.

however, a marked difference in the way in which this development evolved between Years 2 (aged 6-7) and 4 (aged 8-9) and Years 4 (aged 8-9) and 6 (aged 10-11). This difference is illustrated in figure 2 below.

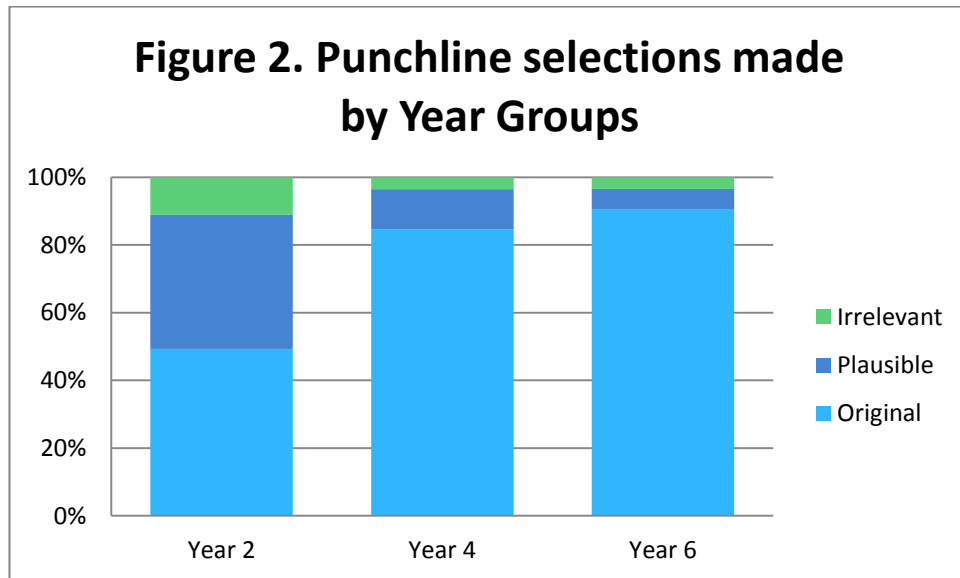


Figure 2 shows that whilst there was a significant difference in the ability to identify the correct (original) punchline across all three Year Groups, this difference was not equally spread. There was a considerable difference between correct punchline choices for consecutive Year Groups.

As depicted in figure 2 there was a far greater increase in correct punchline choices between Years 2 and 4 than there was between Years 4 and 6 (the differences were 94 and 24 respectively). Two separate post-hoc chi square tests were performed, one on the difference between multiple choice selections pertaining to Years 2 and 4 and a subsequent one on the differences between Years 4 and 6. The result for the difference between Years 2 and 4 was ($\chi^2(2) = 81.2, p < 0.01$) and the result for the difference between Years 4 and 6 was ($\chi^2(2) = 6.0, p > 0.05$). The results of the post hoc tests therefore showed there to be a significant difference between the correct punchline selections for Years 2 and 4 (147 correct choices as opposed to 241) but no significant difference between Years 4 and 6 (241 correct choices as opposed to 265). This means that whilst the number of correct (original) punchline choices increased with each ascending Year Group, the difference was significant only between the two youngest Year

Groups - Year 2 (aged 6-7) and Year 4 (aged 8-9). This would therefore suggest that a period of accelerated development in the ability to identify ambiguity-based punchlines occurs between the ages of 6-9. Reasons that might account for this period of accelerated development are discussed in the following chapter in relation to children's developing humour, cognitive, listening and language processing skills (section 5.3.2).

4.3.2 The verbal explanation task: explaining ambiguities

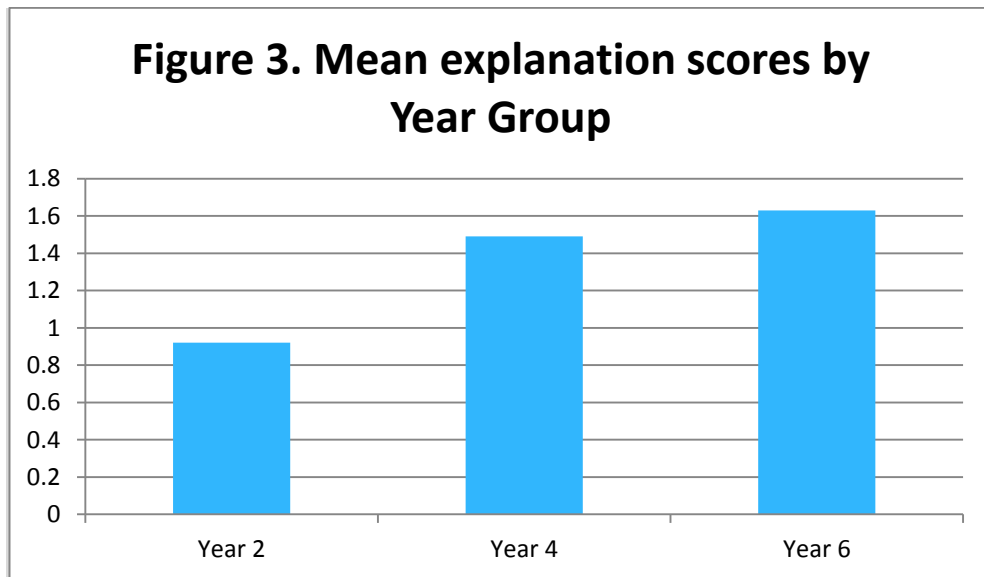
The same five types of ambiguity were tested in the verbal explanation task as in the multiple choice task, namely lexical, phonological, morphological, syntactic and idiomatic. Testing the same types of ambiguity, with identical classifications, allowed for a direct comparison of results between the two tasks.

The verbal explanation task involved participants explaining the reasons behind their multiple choice punchline selections. Explanations were transcribed for later analysis and were scored by three independent raters. Only explanations relating to correct punchline selections were scored – although explanations for non-target (ie. plausible and irrelevant) explanations were also analysed qualitatively (sections 4.2.2 and 4.2.3). This was due to the sheer volume of transcriptions and time demands upon raters and the fact that analyses had to be prioritised in terms of how they contributed to original research questions. Explanation scores ranged from 0 to 2 and participants were awarded a 0, 1 or 2 for each explanation (see section 3.9.3.2).

Using the same comprehension criteria (see Appendix 6) but scoring individually, three independent raters were in agreement with 90.6% of explanations scored. They subsequently met to discuss the scores upon which they had not agreed. Following discussion, raters agreed on 98.6% of scores. There were only nine explanations for which raters could not reach a consensus. In such instances a score was awarded on the basis of the most frequently awarded score. For the nine explanations upon which raters could not agree there was always a majority score, with two raters awarding

an identical score and one scoring differently. On no occasion did raters award three different scores.

As reported above, explanations were only scored by raters when participants had correctly chosen the original punchlines. As the number of participants correctly selecting original punchlines increased with Year Group, so too did scored explanations. This in turn meant that the number of participants being scored for each ambiguity type varied from one Year Group to another. In order to make any meaningful comparison then, a mean score was calculated for each Year Group's total verbal explanations. Differences in overall mean explanation scores³⁶ are illustrated in figure 3 below.



As figure 3 shows there was an increase in overall mean scores for verbal explanations as Year Groups ascended. The overall mean explanation scores were 0.92 for Year 2, 1.49 for Year 4 and 1.63 for Year 6. An analysis of variance was run to determine whether there were significant differences in overall mean scores. This proved to be the case: ($F(2,57) = 14.16, p < 0.01$). Of particular note, as depicted in figure 3, the difference in mean scores occurring between Years 2 and 4 (0.57) was greater than that which occurred between Years 4 and 6 (0.14). An analysis of variance was

³⁶ A 2 was the highest possible mean score that could have been obtained in the verbal explanation task since this was the highest score that participants could attain for a single explanation (see section 3.9.3.2).

therefore run on scores for Years 2 and 4 and Years 4 and 6 to determine whether scores differed significantly between consecutive Year Groups. Results showed that the differences in scores were significant between Years 2 and 4 ($F(1,57) = 26.86$ $p < 0.01$) but not between Years 4 and 6 ($F(1,57) = 1.45$, $p > 0.05$). This mirrors the finding from the multiple choice task, in which an accelerated rate of development in the ability to identify ambiguity-based punchlines was established as occurring between Years 2 and 4. In this instance the results show there to be a significant difference (here an ascending increase) in explanation scores occurring between participants in Year 2 (aged 6-7) and Year 4 (aged 8-9). Explanation scores continued to increase between Years 4 (aged 8-9) and 6 (aged 10-11), but at a much lesser rate.

4.4 RQ3: To what extent does ambiguity type affect children’s proficiency in comprehending ambiguities in verbal riddles?

4.4.1 The multiple choice task: identifying ambiguities

Table 2 shows the number of times each Year Group correctly selected original punchlines for each individual ambiguity type in the multiple choice task. The potential maximum score for each ambiguity type per Year Group was 60 and for the three Year Groups combined was 180.

Table 2. Original punchline selections by ambiguity type for individual Year Groups

	Lexical	Phonological	Morphological	Syntactic	Idiomatic
Year 2	37 (62%)	24 (40%)	28 (47%)	22 (37%)	36 (60%)
Year 4	55 (92%)	53 (88%)	46 (77%)	38 (63%)	49 (82%)
Year 6	51 (85%)	54 (90%)	53 (88%)	49 (82%)	58 (97%)
Totals	143 (79%)	131 (73%)	127 (71%)	109 (61%)	143 (79%)

As table 2 shows, each type of ambiguity was more frequently correctly identified as Year Groups ascended with the exception of lexical ambiguity. Lexical ambiguity was the only type for which there was not a age increase in correct punchline selections in line with ascending Year Groups. Year 4 identified this type of ambiguity more frequently than Year 2 (as was the overall trend) but also more than Year 6 (which was out of keeping with the trend). The difference in the number of times lexical ambiguity was correctly identified by Year 4 over Year 6 was small however in relation to overall totals (55 times as opposed to 51) and did not affect the overall order in which ambiguity types were most frequently identified correctly.

Table 2 shows that, of the five ambiguity types tested, lexical and idiomatic ambiguities were identified most frequently overall (although see section 4.5.2 for further discussion on misleading identification rates for idiomatic ambiguity), followed by phonological, morphological and syntactic ambiguities. A two-way analysis of variance was run on Year Groups and ambiguity types to determine whether ambiguity type had a significant effect on correctly identified original punchlines. Although the anova showed there to be no significant effect for ambiguity type upon correct identification rates across the three Year Groups ($F(4,8) = 3.52, p > 0.05$) the raw data nonetheless suggested that there was some type of interaction. Therefore three further analyses of variances were run, one on each individual Year Group: Year 2 ($F(4,76) = 26.03, p < 0.01$), Year 4 ($F(4,76) = 6.05, p < 0.01$), Year 6 ($F(4,76) = 2.21, p > 0.05$). The results of the anovas run on Year Groups showed that there was a significant relationship between scores and ambiguity type for Years 2 and 4 but not for Year 6. Ambiguity type therefore affected comprehension significantly, in terms of identification scores, for the two younger Year Groups (aged 6-9).

As can be seen in table 2, Years 2 and 4, the two Year Groups for whom there was a significant relationship between ambiguity type and scores both identified lexical ambiguity correctly most frequently and syntactic ambiguity least frequently (although see section 4.5.2 for discussion on idiomatic ambiguity). There was variation in identification rates for the

three remaining ambiguity types, but when scores were combined for these two Year Groups, lexical ambiguities were identified most frequently (92 times), followed by idiomatic (85), phonological (77) morphological (74) and syntactic (60) ambiguities respectively. This mirrored the overall findings for the multiple choice task.³⁷

A major factor to consider in evaluating the above finding is the fact that the ambiguity types tested here were all manifested through different linguistic phenomena. Some required more complex processing skills than others in order that they be comprehended. As table 2 shows, those that required additional levels of processing (eg. morphological and syntactic) were identified less frequently than those that did not (eg. lexical and phonological ambiguities).³⁸ This finding is discussed in further detail in the following chapter (section 5.3.2.4).

4.4.2 The verbal explanation task: explaining ambiguities

As earlier reported (section 4.3.2), participants in the verbal explanation task were awarded a 0, 1 or 2 depending on the number of meanings raters judged them to have communicated. These scores were totalled for each type of ambiguity tested and a chi square test was subsequently run to determine whether number of scored explanations differed significantly by ambiguity type ($\chi^2(4) = 21.58, p < 0.01$). The results of the chi square test showed there to be significant differences between the numbers of ambiguity types scored. Notably syntactic ambiguities had the lowest number of scored explanations for each of the three Year Groups. This corresponds with findings from the multiple choice task, in which this type of ambiguity was correctly identified least by each of the three Year Groups (although see section 4.5.2 regarding idiomatic ambiguity).

³⁷ Lexical and idiomatic ambiguities were identified joint most frequently overall and first and second most frequently respectively when scores were combined for participants in Years 2 and 4.

³⁸ This is not reflected by the raw data for idiomatic ambiguity. However subsequent analysis as discussed in section 4.5.2 shows this holds true.

As detailed earlier, explanations were only scored by raters when participants had correctly chosen the original punchlines, which meant that the number of participants being scored for each ambiguity type varied from Year Group to Year Group (see section 4.3.2). Therefore, in order to make any meaningful comparison, a mean score was calculated for each Year Group's scored verbal explanations for each ambiguity type.³⁹ Mean scores are recorded in Table 3 below.

Table 3: Mean scores by ambiguity type for the verbal explanation task

	Lexical Ambiguity	Phonological Ambiguity	Morphological Ambiguity	Syntactic Ambiguity	Idiomatic Ambiguity	All Types of Ambiguity
YEAR 2	1.00	1.04	0.84	0.78	0.89	0.92
YEAR 4	1.65	1.60	1.35	1.49	1.31	1.49
YEAR 6	1.70	1.75	1.62	1.53	1.54	1.63
Ambiguity Type Total	1.50	1.56	1.37	1.36	1.30	1.42

As with overall explanation scores (earlier discussed in section 4.3.2), mean scores for each type of ambiguity increased with ascending Year Group (and therefore age). The largest jump in scores for each ambiguity type occurred between Year 2 (aged 6-7) and Year 4 (aged 8-9). The differences in mean scores between consecutive Year Groups are shown for each ambiguity type in table 4 below.

³⁹ Mean scores accommodated the fact that only correct selections were scored by raters.

Table 4. Differences in ambiguity explanation scores between consecutive Year Groups

	Lexical Ambiguity	Phonological Ambiguity	Morphological Ambiguity	Syntactic Ambiguity	Idiomatic Ambiguity
Difference Between Year 2 & Year 4	0.65	0.56	0.51	0.71	0.42
Difference Between Year 4 & Year 6	0.05	0.15	0.27	0.04	0.23

A two-way analysis of variance was run which showed that there were significant differences in mean scores between Year Groups ($F(2,638) = 60.44, p < 0.01$) and between ambiguity types ($F(4,638) = 3.78, p < 0.05$). Mean scores increased from Year 2 to Year 4 and from Year 4 to Year 6 for each type of ambiguity tested as can be seen in table 4. Of the five types of ambiguity tested, phonological ambiguities were found to score highest overall, followed by lexical, morphological, syntactic and idiomatic ambiguities respectively. This finding parallels results from the multiple choice task in that ambiguity types that require additional levels of processing (eg. morphological, syntactic and idiomatic ambiguities)⁴⁰ were explained less successfully than those that did not (eg. lexical and phonological ambiguities).

4.5 Comparison of results from multiple choice and verbal explanation tasks

Results from the multiple choice task were compared with those of the verbal explanation task in order to establish whether there were parallels in outcomes for each of the research questions discussed within this chapter (RQs 2 and 3) - and to determine whether any discrepancies existed. The findings are discussed below.

⁴⁰ Although see section 4.5.2 for discussion on identification rates for idiomatic ambiguity.

4.5.1 Parallels in findings

4.5.1.1 RQ 2: To what extent does the ability to comprehend ambiguities in verbal riddles differ across Year Groups?

Findings from the multiple choice and verbal explanation tasks corresponded with each other to show that the ability to identify and explain ambiguities increased with each ascending Year Group (and therefore with age). This development was not equally spread across the three Year Groups however. There was a significant developmental increase occurring between Year 2 (aged 6-7) and Year 4 (aged 8-9). The ability to identify and to explain ambiguities continued to develop between Year 4 (aged 8-9) and Year 6 (aged 10-11) but at a less accelerated rate than between the two younger Year Groups. This finding corresponds with McGhee's framework of humour development (as further discussed in section 5.2.2.1), in which children (typically) aged seven make advances in understanding verbal humour based on ambiguous use of language.

It should be noted here, however, that whilst an accelerated development in the ability to identify and explain ambiguities occurred between Years 2 and 4, Year 2 were *already* capable of identifying almost half of the original punchlines correctly (147 times out of a potential 300 = 49%). Participants in this Year Group ranged from 6-7. Given that they were able to correctly identify almost half the punchlines containing ambiguous words/phrases, it appeared that participants in Year 2 were already well on their way to being able to identify ambiguity-based punchlines as opposed to simply '*begin[ning]*' (McGhee 1979) to develop proficiency in doing so (although see section 4.5.2 for a discussion on idiomatic ambiguity). This finding is further discussed in section 5.2.2.2).

The fact that participants correctly identified more original punchlines as Year Groups ascended, and showed a growing tendency to choose original punchlines containing incongruities which required resolution, also supports the Incongruity Resolution (IR) Theory of humour (Suls 1972, 1983). This

theory views jokes, particularly verbal jokes such as the riddles employed in this study, as having to be made sense of (ie. ‘resolved’) in order to be comprehended and appreciated. By eschewing irrelevant and plausible punchlines in favour of original ones containing ambiguous words/phrases, participants showed a growing preference for punchlines which could only be understood through identification and resolution of an incongruity (in this instance ambiguous words/phrases). Their verbal explanations reinforced this finding.

4.5.1.2 RQ3: To what extent does ambiguity type affect children’s proficiency in comprehending ambiguities in verbal riddles?

Scores in both the multiple choice and verbal explanation tasks differed according to the ambiguity type being tested. The overall order in which ambiguity types were comprehended successfully was identical in both tasks (although see section 4.5.2 for a discussion on misleading identification rates for idiomatic ambiguity). The interaction between ambiguity type and scores was shown to be significant across all three Year Groups in the verbal explanation task, and although this was not the case overall in the multiple choice task, proved significant for Years 2 and 4 when broken down by Year Group. Ambiguity identification rates combined for Years 2 and 4 duplicated the overall pattern for both multiple choice and verbal explanation tasks. Direct parallels can thus be drawn between findings for the two tasks, which would in turn suggest that some ambiguities are harder for young children to comprehend than others, especially as they start to make the transition to, and operate within, the final stage of humour, much of which is based upon ambiguous use of language.

Overall, of the five ambiguities tested, lexical and phonological ambiguities were easiest for participants both to explain (based on explanation scores) and to identify (based on frequency of original punchline selections – although see section 4.5.2 below regarding idiomatic ambiguity which was misleadingly ‘identified’ joint most frequently correctly, together with lexical ambiguity).

Least frequently identified was syntactic ambiguity, which (other than idiomatic ambiguity – see discussion below) scored lowest in the verbal explanation task. The data thus showed that the addition of a class violation (grammar) to a lexical ambiguity transformed it from being the easiest type of ambiguity to identify to the most difficult. This was not as straightforward as figures initially suggested, however. Subsequent analysis of the data from the verbal explanation task supported the finding that syntactic ambiguity was harder to identify than lexical, phonological and morphological ambiguities, but did not support the finding that syntactic ambiguity was more difficult to identify than idiomatic ambiguity. Although idiomatic ambiguity scored joint highest in the multiple explanation task, this finding was transposed in the verbal explanation task, where it scored lowest (see section 4.5.2 for further discussion).

Finally, morphological ambiguity rated midway between the four other ambiguity types. It was identified third most frequently in the multiple choice task and rated third in terms of verbal explanation scores. This would suggest that morphological ambiguity was harder to identify and explain than lexical and phonological ambiguities but was easier to identify and explain than syntactic and idiomatic ambiguities.

To summarise, findings from the multiple choice task and the verbal explanation task corresponded to show that phonological and lexical ambiguities were comprehended⁴¹ most accurately, followed by morphological and syntactic ambiguities respectively. The significance of this finding is discussed in chapter 5 in which outcomes are applied both theoretically (to develop our understanding of humour development) (section 5.2.) and practically (to inform classroom practice) (section 5.4). There was, however, a contrast in findings for idiomatic ambiguity which is now discussed in more detail below.

⁴¹ In terms of being most frequently identified correctly and explained most successfully.

4.5.2 A contrast in findings

As already highlighted above, there was a major discrepancy in findings for scores relating to idiomatic ambiguity. The multiple choice task showed idiomatic ambiguity to be identified joint most frequently (with lexical ambiguity) whereas the verbal explanation task results showed idiomatic ambiguity to be the least well explained by participants. Multiple choice results show this type of ambiguity was easiest to identify, whilst verbal explanation results indicated it was the most difficult to explain (in terms of scores). This was not necessarily because idiomatic ambiguity was harder to explain per se than any other ambiguity type, however, as discussed below.

A large part of the discrepancy in the above finding can be explained by the fact that the two tasks provided different types of data for analysis. The multiple choice task showed *how many* idiomatically ambiguous ‘original’ punchlines selections were chosen, whilst the verbal explanation task showed *why* they had been selected. The different types of data provided by the two tasks means that findings from the multiple choice task, when taken in isolation, had the potential to mislead. Figures for the multiple choice task show a high number of participants were able to correctly identify original punchlines based on idiomatic ambiguity – which would in turn suggest idiomatic ambiguity to be one of the easiest ambiguity types to comprehend, at least in terms of identification. This was not necessarily the case. Analysis of scored explanations, where participants chose original punchlines containing idiomatic expressions, showed almost twice as many literal meanings were communicated as figurative meanings (105 literal meanings as opposed to 56 figurative ones). Explanations relating to idiomatic ambiguity thus revealed that not all original punchline selections were based upon the literal/figurative wordplay embedded within idiomatic expressions but were based solely upon literal meanings – hence the low score for explanations based upon idiomatic ambiguity. This finding is further discussed in section 5.3.2.4.

4.6 Contextualising Findings

Findings would ordinarily at this point be compared with those of earlier studies in order to identify potential parallels and/or discrepancies and to build upon existing knowledge. As earlier discussed this type of contextualisation is currently complex, and often not possible, in relation to children's humour comprehension because of the differing ways in which ambiguity types have to date been interpreted. Although it is not always possible to directly compare 'like' for 'like' results, comparisons can still be made as long as any differing variables are duly noted. This matter is therefore given consideration whilst drawing tentative parallels below between current outcomes and findings from previous studies.

The finding that lexical and phonological ambiguities were easiest for participants both to explain (based on explanation scores) and to identify (based on frequency of original punchline selections)⁴² corresponds with the findings of Shultz (1974)⁴³ and Hirsh Pasek et al⁴⁴ (1978) both of whom, by virtue of the examples they provide, interpret lexical ambiguity in the same way as the current researcher and report it as scoring highest in explanation tasks. Consistency in the interpretation and application of what constitutes a lexical ambiguity therefore shows a similar trend in findings when compared across the two studies and the current one. Shultz & Pilon (1973)⁴⁵ and Shultz & Horibe (1974)⁴⁶ also report phonological and lexical ambiguities as scoring more highly than other types of ambiguities, although

⁴² Although see section 4.5.2 for discussion regarding idiomatic ambiguity.

⁴³ It must be noted that Shultz positioned the ambiguous word in his answer for some types of ambiguity and in the question for others. Since location of an ambiguity can affect proficiency in identification (Yalisove 1978) this may have had a bearing on the findings. Shultz had 3 (out of 5) categories in common with the present study.

⁴⁴ Hirsh-Pasek et al chose to test different types of ambiguity a different number of times. 'Surface structure', 'underlying structure' and 'morpheme boundary with phonological distortion' were tested only 4 times compared with 'morpheme boundary' (5 times), 'phonological' (6 times) and 'lexical' (7 times). This may have had a bearing on their findings. Hirsh-Pasek et al had 4 (out of 6) categories in common with the present study.

⁴⁵ Shultz & Pilon tested ambiguous sentences rather than riddles containing ambiguities. Shultz & Pilon had 3 (out of 4) categories in common with the present study.

⁴⁶ Shultz & Horibe had 3 (out of 5) categories in common with the present study.

they include in the category of phonological ambiguity both (a) homophones and (b) instances of ‘confusion about the boundaries between words’ (Shultz & Pilon 1973:728, Shultz & Horibe 1974:14). Such linguistic phenomena are treated in the present investigation as comprising lexical and morphological ambiguities respectively.

The finding that syntactic ambiguity was least frequently identified⁴⁷ and scored lowest in the verbal explanation task (other than idiomatic ambiguity) parallels the findings of Shultz & Pilon (1973) and Shultz & Horibe (1974), both of whom report ‘deep structure’ ambiguities as being difficult for young participants to explain. It also duplicates the findings of Yuill (1998), who reports syntactic ambiguities to be more difficult than other types for children to identify in her multiple choice task. One has to acknowledge however that, of the seven types of riddle punchlines Yuill opts to test, not all specifically rely on verbal ambiguities - she also tests ‘pragmatic riddles’, ‘absurdity riddles’ and ‘metalinguistic riddles’. Only three of her classifications match those used in the current study, although they do not necessarily appear under the same ‘labels’ (Yuill’s ‘word-compound’ ambiguity matches the current researcher’s interpretation of ‘morphological ambiguity’). Even when classifications do ‘match’ in terms of labelling, they are not always interpreted in a similar manner. The riddle ‘Why do leopards never escape from the zoo? Because they’re always spotted’ (Yuill 1998:327) is treated as comprising lexical ambiguity by Yuill and as syntactic ambiguity by the current researcher. The differences here in terms of interpretation are crucial given that lexical and syntactic ambiguities occur at extreme ends of the spectrum in terms of identification rates in the present study. ‘Spotted’ in the current context requires the listener not only to identify a homonymous relationship but also to be able to process it as involving a change in word class (ie. as both an adjective and a past tense verb form). Yuill fails to acknowledge the additional layer of syntactic processing (see section 2.9.6) that has to be taken into account when decoding the homonym ‘spotted’, however, which means that her

⁴⁷ Although see section 4.5.2 for discussion on idiomatic ambiguity.

reported findings for lexical ambiguities do not relate to this phenomenon alone, even though they are reported as such.

That syntactic ambiguity was least frequently identified and (other than idiomatic ambiguity) hardest to explain, does not correspond with Hirsh-Pasek et al's (1978) findings for 'case-labelling' ambiguities, which they report as being easiest for children to explain (after lexical ambiguities). However, the examples they provide show that their 'underlying structure ambiguities' are those which would be classified as either lexical or idiomatic ambiguities by the current study. They do not involve a change in word class and include fixed phrases which rely upon both figurative and literal interpretations in order to elicit humour.

It is harder to contextualise findings for morphological and idiomatic ambiguities than for the three ambiguity types discussed above, simply because they have been tested less frequently in previous studies. A parallel for findings can be found for morphological ambiguity with the study of Hirsh-Pasek et al (1978) who interpret 'morpheme boundary ambiguity' in a similar fashion to the present investigation and also report it as being more difficult to explain than phonological or lexical ambiguities - but findings for idiomatic ambiguity in humour studies are not reported as having been overtly tested. The lack of reported findings for this ambiguity type does not mean that idiomatic ambiguity has not been tested. It has, although researchers have failed to address the fact that idiomatic ambiguities require a specific type of competence and have instead included them in differing categories of ambiguity, eg. Fowles & Glanz (1977: 446) include riddles reliant upon idiomatic ambiguity in the category of lexical ambiguity, whereas Shultz & Pilon (1973:730) treat idiomatically ambiguous sentences as being phonologically ambiguous.

In sum, there are both parallels and discrepancies to be drawn between current outcomes and reported findings from previous studies on children's humour and ambiguity comprehension. Ambiguity types have not always been interpreted in the same way, however, which means that whilst

parallels may be drawn, they do not always correspond to the types of linguistic phenomena actually tested. Discrepancies also occur where parallels might otherwise have been drawn had ambiguity types been interpreted in the same way. This reinforces the earlier call for consistency in ambiguity classifications so that comparisons might be made across studies more readily in order to build up a bigger picture of the way(s) in which different language phenomena affect children's developing ability to comprehend ambiguities. This issue has already been addressed by the present study (in section 3.8.1) by providing definitions focusing specifically on inherent language phenomena embedded within the form(s) of verbal riddles.

Whilst lack of attention to detail - and inconsistency of application - regarding the type(s) of language phenomena constituting discrete ambiguity types has affected outcomes for, and across, earlier studies, there are further factors, more specific to the present investigation, which merit consideration in relation to current outcomes. These factors will be discussed in more detail in the following chapter.

4.7 Concluding comments

This chapter has recorded the results for the multiple choice and verbal explanation task, both of which were aimed at testing children's comprehension of five different types of ambiguities in verbal riddles and has used findings to address research questions 2 and 3 as laid out at the start. In brief, quantitative and qualitative analysis of results from a multiple choice and verbal explanation task have both shown that the ability to identify and explain ambiguities increases with each ascending Year Group (and therefore age) and that there is a much larger and significant increase in development occurring between Years 2 and 4 than between Years 4 and 6. Besides age, ambiguity type has also been shown to affect comprehension.⁴⁸ Lexical and phonological ambiguities were comprehended most readily by participants, followed by morphological,

⁴⁸ In terms of identification rates and explanation scores.

syntactic and idiomatic ambiguities respectively.⁴⁹ These findings will now be applied in in the following chapter to further understanding of humour development and to inform classroom practice.

Qualitative analysis of participants' transcribed explanations, in addition to contributing to the above findings, has also allowed for the identification of strategies spontaneously employed by young children to communicate their understanding of ambiguities. These strategies were, in the absence of previous published guidelines, used to develop comprehension criteria for application in this particular study but can now also be used in future studies of a similar nature and more generally to inform assessment criteria relating to children's listening skills (as discussed in section 5.6.2).

The following chapter will now examine factors that may have contributed to the above findings and will consider why some types of ambiguity proved harder for participants to identify and explain than others.

⁴⁹ Although see section 4.5.2 for discussion on identification rates for idiomatic ambiguity.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Chapter Overview

Following on from the presentation of results, chapter 5 now evaluates outcomes from the study. Results are analysed to address the final research question, RQ4 ‘To what extent can findings be used to develop our understanding of humour development?’ Findings are applied to further understanding of stage 5 humour, during which children first start to understand verbal riddles based upon ambiguous use of language, and suggestions are made as to the ways in which humour development progresses upon transition to, and within, this final humour stage. Proposals are made as to how McGhee’s 5 stage framework of humour development might now be further refined (section 5.2.2.3).

Factors that may have contributed to outcomes are subsequently discussed. Some of these factors were external to the child and related to the methodology. Others were internal to the child and related to general developmental advances. External factors are examined first (section 5.3.1) and relate to stimuli (ie. riddles) used in the study and the way in which they were presented to participants. Consideration is given to the order in which riddles and punchlines were read aloud to participants and as to whether warm-up riddles used in the introductory session, and substitute riddles, called upon when one of the original 15 riddles had been heard previously, may have affected outcomes. The identification rates and verbal explanation scores for each of the 15 original riddle punchlines are also examined to determine whether or not individual riddles may have skewed overall results.

Having evaluated the above ‘external’ variables, consideration is then given to internal factors such as children’s developing cognitive and language processing skills and to the way(s) in which these may have had a bearing on final outcomes (section 5.3.2).

The implications that findings might have in relation to classroom practice are next examined. Outcomes are used to make suggestions as to the order in which riddles might be introduced in the classroom to provide

developmentally appropriate learning experiences and to maximise leaning opportunities for pupils. Links are made between findings and statutory stipulations in the current KS2 PoS for the teaching of oracy in primary schools in Wales.

The chapter concludes by reflecting upon potential limitations of findings and examines issues arising specific to this study. Suggestions are made accordingly as to potential areas for further focused research.

5.2 Interpretation and application of results

The initial aim of this study was to test children's comprehension of ambiguities in verbal riddles by means of two different tasks, a multiple choice task and a verbal explanation task in order to find out how comprehension advances as children progress to stage 5 humour, during which verbal ambiguities start to be understood. The multiple choice task tested comprehension receptively (through identification of an ambiguity), and the verbal explanation task tested comprehension productively (through explanation of an ambiguity). Each task aimed to counterbalance potential weaknesses in the other. Results from both the multiple choice and verbal explanation tasks are evaluated below in order to answer the final research question, RQ4 'To what extent can findings be used to develop our understanding of humour development?' Findings are discussed firstly in relation to the Incongruity Resolution Theory of humour (Suls 1972, 1983) and are then applied to develop the final stage of McGhee's (2002) 5 stage framework of humour development.

5.2.1 IR Theory and children's verbal humour comprehension

As reported in section 4.3.1, participants correctly chose more original punchlines as Year Groups ascended, and showed a growing tendency to choose original punchlines containing incongruities which required resolution. This supports the Incongruity Resolution (IR) Theory of humour which views jokes, particularly verbal jokes such as the riddles employed in this study, as having to be made sense of (ie. 'resolved') in order to be

comprehended and appreciated. By eschewing irrelevant and plausible punchlines in favour of original ones containing ambiguous words/phrases, participants showed a growing preference for punchlines which could only be understood through identification and resolution of an incongruity (in this instance ambiguous words/phrases). Their verbal explanations reinforced this finding. The preference across all Year Groups for this type of punchline supports the IR theory that incongruity needs to be succeeded by resolution in order that it might be perceived as being intentionally humorous in verbal riddle exchanges.

Whilst trends in ambiguity comprehension showed a growing preference for original punchlines dependent upon identification and resolution of an incongruity (see section 4.3.1 and 4.3.2), punchline selections and verbal explanations scores nonetheless varied across, and between, consecutive Year Groups, as well as according to ambiguity type, as further discussed below.

5.2.2 Applying findings to further understanding of humour development

5.2.2.1 Supporting the humour model

As reported in the previous chapter, both the multiple choice and verbal explanation tasks showed that the ability to identify and explain ambiguities increased with each ascending Year Group but that this increase was not equally spread across Year Groups. There was a significant developmental increase in participants' ability to identify and explain ambiguities occurring between Year 2 (aged 6-7) and Year 4 (aged 8-9). This means that the age (6-9) during which this significant developmental increase took place corresponds with McGhee's current framework of humour development - in which children (typically) aged 7 are said to make the transition from stage 4 to stage 5 humour and to begin to develop the ability to comprehend verbal jokes dependent upon the exploitation of ambiguous language. Whilst the increase in correctly identified punchlines and increase in explanation scores by Years 2 and 4, supports McGhee's framework, the

results nonetheless also suggest that the age at which the transition to stage 5 humour *starts* might be lower than has previously been suggested (as further discussed below).

5.2.2.2 Challenging the humour model

Whilst the results support McGhee's 5 stage humour framework (in terms of a large developmental increase in the ability to correctly identify and explain ambiguities around the ages of 6-9), the number of ambiguities correctly identified by participants in Year 2 shows that the youngest participants (aged 6-7) were able to identify more ambiguities than might have been expected. Participants in Year 2 were able to identify almost half of the ambiguities correctly (149 out of a potential 300). Given this, it appears that some participants (aged 6-7) were already adept at identifying punchlines based on ambiguous use of language (although see section 4.5.2 for a discussion on idiomatic ambiguity).⁵⁰ Even allowing for individual variation, this is earlier than McGhee's model (1979, 2002) would currently suggest. McGhee claims that it is around 'the age of about seven (on average), [that] children *begin* to be able to detect linguistic ambiguity and realize that there are two ways in which the key word makes sense' (McGhee 1979:76) (researcher's italics). However, participants aged 6-7 in the current investigation, despite having lower identification rates than those in older Year Groups, demonstrated that they were already able to identify many (although not all) instances of linguistic ambiguity in the punchlines of verbal riddles. Whilst the current data confirms the biggest developmental leap in understanding verbal ambiguities to occur between the ages of 6 and 9, it also hints at the possibility of children *starting* to develop their understanding of ambiguity-based humour at an even earlier age. Whether this was because they were cognitively advanced, linguistically advanced, or because the link between cognitive and humour development is not as closely bound as previously believed is not ascertainable from the current study but certainly merits further

⁵⁰ Potentially misleading scores for idiomatic ambiguity in the multiple choice task have already been discussed in section 4.5.2. Even when scores for idiomatic ambiguity are removed from overall totals however, participants in Year 2 were able to correctly identify over a third of all original riddle punchlines.

investigation. Further studies might now build on this finding by testing participants younger than those that participated here in order to determine whether the age at which young children *start* to comprehend ambiguities is earlier than as presently accounted for in McGhee's five-stage framework of humour development. Should this be the case, then McGhee's model (first formulated some 38 years ago) might in future be challenged as regards the age at which children *start* to make the transition to stage 5 humour.

5.2.2.3 Developing the humour model

As outlined above, the findings from the multiple choice and verbal explanation tasks both supported and challenged McGhee's (1979, 2002) humour framework. In addition, outcomes from the two tasks provided an insight into trends in verbal ambiguity comprehension which are not accounted for by the model in its current format. As children were making the transition to, and starting to operate within, stage 5 humour, they found some types of ambiguities easier/more difficult to comprehend (in terms of identification rates and explanation scores) and this varied according to the linguistic phenomena upon which ambiguities were based. Although results showed there to be an overlap in the types of ambiguities understood (not every single lexical ambiguity was comprehended before morphological ambiguities started to be understood for example), results from both multiple choice and verbal explanation tasks nonetheless showed the same trend in terms of types of ambiguities most readily identified and explained by participants - which would in turn suggest that the sequence remains constant. Lexical and phonological ambiguities were comprehended most readily by participants, followed by morphological, syntactic and idiomatic ambiguities respectively (see section 4.5.1).⁵¹

In light of the above, it is therefore proposed that a set of sequential sub-stages exists within – and upon advancement to – Stage 5 humour. These sub-stages can accordingly be used to refine the final step within McGhee's framework of humour development. Each proposed sub-stage interrelates with both the language phenomena embedded within the wording of a

⁵¹ Although see section 4.5.2 for discussion on identification rates for idiomatic ambiguity.

verbal riddle (ie. the form in which it is presented) and the different processing demands it makes of the listener. Ambiguity types that rely upon linguistic phenomena that are more easily processed (as per children's general language development) are more likely to be understood first upon advancement to stage 5 humour, whereas those which require additional levels of processing are understood later (see section 5.3.2.4 for further discussion).

The proposed sub-stages for ambiguity types most readily comprehended during transition to, and operation within, stage 5 humour (within McGhee's model) comprise:

Substage 5a: lexical and phonological ambiguities

Substage 5b: morphological ambiguities

Substage 5c: syntactic ambiguities

Substage 5d: idiomatic ambiguities

It will be noted here that of these 4 sub-stages, the final 3 stages contain one type of ambiguity only, whilst the first stage contains two types: lexical and phonological ambiguities. Both lexical and phonological ambiguities were understood more than the three other types (morphological, syntactic and idiomatic) in both the multiple choice and verbal explanation task but in opposing orders. Hence, although lexical and phonological ambiguities emerged as being easiest for young children to comprehend, there still remains some deliberation as to whether one of these two types of ambiguity is more readily understood than the other. This might therefore prove an area for further focused investigation in order to refine the humour model further (see section 5.2.2.3).

5.3 Factors affecting outcomes

5.3.1 Riddles

As outlined in the introductory section to this chapter, several of the variables meriting consideration in relation to the findings concerned stimuli

(ie. riddles) employed in the study. The discussion below therefore focuses on the different aspects of riddle ‘input’ that may have contributed to findings.

5.3.1.1 Riddle position

The order in which riddles were presented to participants was examined to determine whether there was any ‘fatigue’ effect in ambiguity identification or explanations. The aim was to determine whether riddles presented earlier were more successfully identified/explained than those which were presented later and whether presentation order affected findings.

Percentage scores were calculated for each of the 15 riddles in the multiple choice task to determine how many times original punchlines of riddles were correctly identified for individual riddles (as recorded in Appendix 8) and mean explanation scores were calculated for each riddle in the verbal explanation task (as recorded in Appendix 9). There was no evidence that riddle position affected participants’ selections or explanations in either task. Riddle identification percentage scores were spread randomly across the multiple choice task eg. scores for riddles 2, 6, 11 and 15 were 15.6%, 78.3%, 96.7% and 63.0% respectively (see Appendix 8 for full list of percentage scores). Mean explanation scores⁵² were spread randomly across the verbal explanation test eg. scores for riddles 2, 6, 11 and 15 were 1.4, 1.2, 1.4 and 1.7 respectively (see Appendix 9 for full list of mean scores). The order in which riddles were presented did not affect the results (in terms of identification rates and mean scores).

5.3.1.2 Punchline position

In addition to riddle position, punchline position also needed to be considered in relation to outcomes. An examination was therefore made to determine whether the order of punchline presentation had an effect on the number of times punchlines were chosen by participants. More specifically examination focused on the possibility of there being a recency effect

⁵² Mean scores were calculated to accommodate the fact that only correct punchline selection explanations were scored – see section 4.3.2.

(Murdock 1962, Wiswede, Russeler, & Munte 2007) ie. a tendency to recall the most recently presented word(s).

Each riddle and punchline had been read aloud to each participant in the same order. Original (correct) punchline positions had been randomly assigned (see section 3.12) which had resulted in differing numbers of original punchlines occurring in positions 1, 2 and 3. This, and the fact that original punchline positions varied in substitute riddles used for individual participants (see section 3.11.5), had to be accommodated in any analysis regarding a potential recency effect. *Actual* punchline positions were therefore noted and compared with *chosen* punchline positions for each riddle, and for each participant, in order to determine which punchline positions participants had selected when the original (correct) punchline was not chosen.

When the original punchline was not selected, there were two remaining options depending upon the position of the original (correct) punchline:

Position 1 Original Punchline - when participants did not select the original (correct) punchline which appeared in position 1, they could either choose punchline 2 (the ‘earlier’ of the two non-original alternatives) or punchline 3 (the ‘later’ of the two non-original alternatives).

Position 2 Original Punchline - when participants did not select the original (correct) punchline which appeared in position 2, they could either choose punchline 1 (the ‘earlier’ of the two non-original alternatives) or punchline 3 (the ‘later’ of the two non-original alternatives).

Position 3 Original Punchline - when participants did not select the original (correct) punchline which appeared in position 3, they could either choose punchline 1 (the ‘earlier’ of the two non-original alternatives) or punchline 2 (the ‘later’ of the two non-original alternatives).

Focus centred upon whether participants opted to repeat the last thing they had heard ie. punchlines presented ‘later’ - and whether this varied across Year Groups. If, when original (correct) punchlines choices were overlooked, the choices between ‘earlier’ and ‘later’ (non-original) punchlines were random (with a roughly equal split), then it was unlikely that recency would have had any effect. On the other hand if ‘earlier’ or ‘later’ punchline choices varied markedly then it was possible that punchline position was having an effect on participants’ selections.

A chi square test was run to determine whether there was a significant difference between ‘earlier’ or ‘later’ punchline selections (when original punchlines had been overlooked): ($\chi^2 (1) = 21.35, p < 0.01$). There were significant differences between the ‘earlier’ and ‘later’ selections across the three Year Groups. The data showed the distribution of ‘earlier’ and ‘later’ selections to vary considerably between Year Groups however. Year 2 chose 51 ‘earlier’ punchlines compared with 15 by Year 4 and 11 by Year 6 and 100 ‘later’ punchlines (91 of which were in position 3) compared with 29 (26 of which were in position 3) by Year 4 and 17 (16 of which were in position 3) by Year 6. Hence three further chi square tests were run in order to determine whether the significant differences between ‘earlier’ or ‘later’ punchline applied to each of the participating Year Groups: Year 2 ($\chi^2 (1) = 15.95, p < 0.01$), Year 4 ($\chi^2 (1) = 4.44, p < 0.05$), Year 6 ($\chi^2 (1) = 1.65, p > 0.05$). The results of the chi square tests showed there to be significant differences between ‘earlier’ and ‘later’ selections for Years 2 and 4, with the effect being most pronounced for the youngest participants in the study in Year 2. When the correct (original) punchline was not selected, Year 2 chose significantly more of the ‘later’ (ie. most recent) punchlines than those heard earlier, particularly those in position 3. There were no significant differences between ‘earlier’ or ‘later’ choices for Year 6, although the fact that Year 6 chose significantly more (correct) original punchlines meant that there were relatively few numbers of incorrect ie. ‘earlier’ or ‘later’ choices anyway.

In light of the above, it is possible that some punchline selections, particularly those chosen by participants in Year 2, were chosen simply

because they had been heard most recently rather than because they had been processed fully (see section 2.2.1.5) by participants. This in turn strengthens the argument for using the subsequent explanation task in which participants were required to communicate the reasons behind their punchline choices. Although more demanding for participants, the fact that the verbal explanation task required them to explain the reasons behind their choices meant that it counterbalanced a potential weakness in the multiple explanation task. It allowed the researcher to determine *why* punchlines had been selected. And whilst there was a potential recency effect in punchline selections, particularly for the younger participants, the results from the verbal explanation task nonetheless corresponded with those of the multiple choice task in terms of trends in ambiguity comprehension - which strengthens the overall findings from the study.

5.3.1.3 Warm-up riddles

The introductory warm-up and dummy run riddles in this study were based on lexical and phonological ambiguities respectively. One might therefore speculate whether this contributed to the finding that lexical and phonological ambiguities types were identified most frequently⁵³ and scored highest for participant explanations. It was not possible to determine the extent to which this variable might have influenced findings, as there was no parallel test carried out using riddles based on different ambiguity types in the introductory session. It should be noted, however, that other studies which have interpreted these lexical and phonological ambiguities in a similar manner (Shultz 1974, Hirsh Pasek et al 1978) also report these two ambiguity types to be most frequently understood by young children (see section 4.6) even though they do not record lexically or phonologically based ‘warm-up’ riddles as having been used in introductory sessions. The fact that these two types of ambiguity appeared in riddles in the introductory session is therefore likely to have had little, if any, bearing on findings. It would nonetheless be of future interest to investigate if findings were altered

⁵³ Although see section 4.5.2 for discussion on idiomatic ambiguity.

in any way if ambiguity types that are harder to comprehend⁵⁴ were used in the introductory warm-up session with participants, especially in light of findings for substitute riddles, as discussed below.

5.3.1.4 Substitute riddles

Substitute riddles were used when participants informed the researcher that they had heard a riddle previously. Some riddles had been heard before more than others and thus required more substitutions. The number of substitute riddles required varied according to ambiguity type and is recorded in Table 5 below. An examination was made to determine whether number and/or type of substitute riddles might have contributed to results.

Table 5. Number of substitute riddles required per ambiguity type

Ambiguity Type	No. of Times a Substitute Riddle was Required Across the Multiple Choice Task
Lexical	22
Phonological	15
Morphological	17
Syntactic	17
Idiomatic	6

As table 5 shows, 77 substitute riddles were required in total (when riddles had been heard previously). 22 riddles were required for lexical ambiguity, 15 for phonological ambiguity, 17 for morphological and syntactic ambiguities and 6 for idiomatic ambiguity.

The high number of substitute riddles for lexical ambiguity suggests that participants had previously heard more riddles based upon this type of

⁵⁴ Based on current findings.

ambiguity than any other. It is therefore possible that they were more familiar with the way this type of ambiguity ‘worked’. If there are more riddles based upon lexical ambiguity in current circulation than any other type – and this assumption is based on participants’ disclosure(s) of riddles heard previously and Attardo et al’s (1994) analysis of 441 verbal jokes, of which 426 were found to be lexical – then the riddle culture of telling a riddle, asking ‘Do you get it?’ and subsequent explanation may have had a bearing on participants’ developing ability to identify and explain this type of ambiguity. Having heard this type of ambiguity being explained, or having participated in explanations themselves, may have assisted participants in their ability to identify and explain lexical ambiguities dependent upon homonymy and homophony. The fact that fewest substitute riddles were required for idiomatic ambiguity supports this argument (although see section 4.5.2 regarding identification rates for idiomatic ambiguity).

If the above supposition (ie. that exposure to ambiguity type contributes to facility of comprehension) is to hold true, however, then one would expect, on the basis of substitute riddles required, that morphological and syntactic ambiguities (requiring 17 substitutions each) were understood more than phonological ambiguities (requiring 15 substitutions). This was not the case. These two ambiguity types were identified least frequently overall in the multiple choice task (although see section 4.5.2 for finding for idiomatic ambiguity) and rated 3rd and 4th in terms of verbal explanation scores. A closer examination of substitute riddles revealed that two riddles in particular contributed to this finding, however. A single riddle based on morphological ambiguity had been heard 17 times previously, and a single riddle based on syntactic ambiguity had been heard 15 times previously. It is therefore possible that, rather than riddles dependent upon morphological and syntactic ambiguities proliferating in general, these two particular riddles simply happened to be enjoying popularity with this group of children at the time of the study. Should this be the case, then the supposition that exposure to ambiguity type might contribute to facility of comprehension holds true. This in turn strengthens the argument for using

riddles in the primary classroom as outlined in chapter 1. Riddles by their very nature contain ambiguities, exposure to which can be used to introduce, consolidate, develop and extend children's understanding of different language forms and phenomena, whilst simultaneously promoting cognitive and linguistic development (see section 1.2). Hence findings from the current study are later applied to inform classroom practice (section 5.4) and to make proposals relating to the order in which riddles might be introduced in the KS2 primary classroom (based on ambiguity type) to meet curriculum stipulations and to help develop language skills.

5.3.1.5 Individual riddle scores

Before findings could be applied as described above it was necessary to determine the extent to which results might have been skewed by individual riddles in the two tasks. Individual riddle identification rates and explanation scores were therefore examined as discussed below.

5.3.1.5.1 Individual riddle scores in the multiple choice task

As recorded above (section 5.3.1.4), substitute riddles were used on occasions when participants had already heard one of the 15 original riddles. They were used 77 times in total. Findings for the 77 substitute riddles therefore had to be eliminated from overall correct identification rates for individual riddles before percentages could be calculated to show which riddles attracted the target response in terms of ambiguity identification most frequently.

Having accommodated the scores accordingly, percentage rates showed that no riddle achieved 100% correct identification but that 12 of the 15 target original punchlines were identified between 60-90% of the time (see Appendix 8). There were only 3 riddles which fell outside this range, all of which contained syntactic ambiguity.

Given that syntactic ambiguity was the most difficult type for participants to identify both overall and for each of the three Year Groups (in that it was

identified least frequently),⁵⁵ one might have predicted that the three riddles containing this ambiguity type, and scoring outside the average range, would each have been least correctly identified under 60% of the time. This was not the case. Two of the three riddle punchlines containing syntactic ambiguity were identified less frequently than any other riddle, but the third punchline dependent upon syntactic ambiguity was identified more frequently than any other riddle in the study.

The two riddles which were identified least frequently in the multiple choice task were:

Riddle 8

How was the blind carpenter able to see?

He picked up his hammer and saw (original punchline)

and

Riddle 2

Why is six afraid of seven?

Because seven eight/ate nine (original punchline)

The original punchlines of these two riddles were correctly identified 46.6% and 15.6% times respectively. These riddles are unlikely to have skewed findings since syntactic ambiguity was identified least frequently overall in the multiple choice task. In contrast, the original punchline of the third riddle based upon syntactic ambiguity was identified 96.7% times in the multiple choice task. This was for the riddle:

Riddle 11

Why do leopards make rubbish thieves?

Because they're always spotted (original punchline)

⁵⁵ Although see section 4.5.2 for discussion on identification results for idiomatic ambiguity.

Given the discrepancy between overall difficulty (in terms of scores) of syntactic ambiguity and the high identification rate of riddle 11, one might be tempted to explain the difference in terms of prior exposure. The study had attempted to address this issue, however, by asking participants to inform the researcher when riddles had been heard before.⁵⁶ In such instances, substitute riddles, based on the same ambiguity criteria, were provided (see section 3.11.5).

One possibility to account for the above finding is that imageability ie. the ease with which certain words were able to evoke a mental image (Pavio, Yuille & Madigan 1968, Bird, Franklin & Howard 2001, McDonough, Song, Hirsh-Pasek, Golinkoff & Lannon 2011), may have had a bearing on the result. Although there is no definitive ‘imageability’ scale with which to measure the ease with which meanings and concepts can be evoked, it is possible that the meaning of ‘spotted’ (ie. ‘covered with spots’) was more visually ‘imageable’ than either of the meanings associated with ‘saw’ (‘tool used to cut wood’ or ‘past tense of the verb to see’) or the words ‘eight/ate’ (a ‘number’ or ‘past tense of the verb to eat’). This is a subjective judgement, however, and whilst all aspects which may have contributed to findings must be considered, the very fact that there is no definitive scale with which imageability might be measured nonetheless means that it is a variable that eludes definitive assessment in the present context. Moreover, in counter-argument, it should also be noted that although the meaning ‘covered with spots’ was identified on 42 occasions, the alternative past tense meaning of the verb ‘to see’ was still identified 31 times. This meaning was far less imageable yet still achieved one of the highest overall identification rates for an individual meaning in the multiple choice task.

An alternative factor to consider in relation to the above finding is that of priming (Hoey 2005, Pace-Sigge 2013). Since priming is said to occur when exposure to particular words facilitates recognition or activation of related words or objects, it could be argued that, upon hearing the word

⁵⁶ It was impossible to verify if children had heard riddles previously but admissions regarding previous riddle exposure were accepted in good faith (see section 5.5.5 for further discussion).

'leopards' the word (or concept) *'spotted'* (in riddle 11) was activated more readily than *'saw'* was upon hearing the word *'carpenter'* (in riddle 8). Whilst this argument might account at least partially for differences in identification rates for these two particular riddles, it does not necessarily account for findings for the third riddle dependent upon syntactic ambiguity (riddle 2). The original punchline of this riddle was identified least frequently overall, despite containing the numbers *'six'* and *'seven'* in its interrogative, which one might argue had the potential to prime the meaning of *'eight'* in the original punchline. Nor did potential priming in this particular instance alter the fact that syntactic ambiguity scored lowest overall in the multiple choice task. Although the *'spotted'* riddle (riddle 11) had the potential to skew results then, it rather served to strengthen the findings. This particular riddle proved more readily identifiable for participants (in terms of frequency of original punchline selection) and yet syntactic ambiguity was still least frequently identified – both overall and for each of the three participating Year Groups.⁵⁷ In this light, neither the highest nor lowest scoring riddles in the multiple choice skewed the overall findings.

5.3.1.5.2 Individual riddle scores in the verbal explanation task

As with the multiple choice task, riddle scores in the verbal explanation task were examined in order to ensure that findings were not skewed by individual riddles.

The mean scores⁵⁸ of explanations for punchline choices for each riddle were examined to determine whether there were individual punchlines/ambiguities which were more difficult for participants to explain than others. The maximum score for each explanation was 2 and the minimum was 0 (see section 3.9.3.2). The mean scores for individual riddle explanations ranged from 1.1 to 1.7 (see Appendix 9).

⁵⁷ Although see 4.5.2 section for discussion on idiomatic ambiguity identification rates.

⁵⁸ As with the multiple choice task, findings for substitute riddles were eliminated so that scores related solely to the 15 original riddles.

The joint highest mean explanation scores were for riddles based upon lexical and phonological ambiguities ($M = 1.7$). This finding corresponded with the overall finding that lexical and phonological ambiguities scored highest in the verbal explanation task (see section 4.4.2). These riddles did not skew findings since riddles dependent upon phonological ambiguity all had a high mean score ($M=1.5$, $M=1.5$ and $M=1.7$), as did another riddle based upon lexical ambiguity ($M=1.6$).

Part of the reason for phonological ambiguities being identified and explained so successfully may have been because they relied upon differences/distortions in sound. It is possible that sound differences may have alerted participants to the incongruities contained within riddles' punchlines. Indeed if one looks at the number of times each phonologically ambiguous meaning was identified, it can be seen meanings that appeared in the punchline (and contained unexpected sounds) were mentioned more frequently than meanings which had to be mentally substituted:

Riddle 5

How did the banana know he was ill?

He wasn't peeling well (original punchline)

(meaning of 'peeling' communicated 42 times, meaning of 'feeling' communicated 26 times)

Riddle 10

What do whales eat for breakfast?

Fish and ships (original punchline)

(meaning of 'ships' communicated 29 times, meaning of 'chips' communicated 27 times)

Riddle 15

What's a mouse's favourite game?

Hide and squeak (original punchline)

(meaning of 'squeak' communicated 33 times, meaning of 'seek' communicated 23 times)

A further factor to consider in relation to the finding that phonological ambiguities were identified and explained so successfully, both overall and individually, is that of collocation (Hoey 2005). As recorded above, each of the riddles based on phonological ambiguity contained words/phrases in their punchlines with strong collocational associations (Hoey 2005): 'feeling well', 'fish and chips', 'hide and seek'. One might therefore speculate whether collocational association played a role in activating meanings in punchlines for participants, ie. did specific combinations of words have the potential to activate one meaning over another? Although this factor merited consideration, it proved not to be the case for any of the riddles dependent upon phonological ambiguity. Collocational meanings, as recorded above, were communicated less frequently than other ambiguous meanings for phonologically ambiguous punchlines.⁵⁹

In contrast to the highest scoring riddle in the verbal explanation task, the lowest scoring riddle overall was based upon idiomatic ambiguity and had a mean score of 1.1:

Riddle 1

Why did the robot act silly?

Because he had a screw loose (original punchline)

That a riddle dependent upon idiomatic ambiguity scored lowest in the verbal explanation task is not surprising given that this type of ambiguity had the lowest mean score altogether in the verbal explanation task (see

⁵⁹ The only other two original punchlines in the study containing potential collocational associations were for syntactic ambiguities: 'Why was six afraid of seven?' 'Because seven, eight (ate), nine' and 'Why was the blind carpenter able to see?' 'He picked up his hammer and saw'. In such instances meanings with collocational associations were mentioned more frequently than alternative meanings but the differences were very small (8 times as opposed to 6 and 16 times as opposed to 15 respectively). Moreover these two riddles were identified least frequently in the multiple choice task which suggests that collocational association did not assist in activating the meanings, or punchlines, of these two riddles over others included in the study.

section 4.4.2). This may have been in large part because participants tended to refer to literal meanings whilst making no reference, and not communicating any awareness of, figurative ones (see section 5.3.2.4 for further discussion). In this particular instance the above riddle elicited 32 literal references compared with 16 figurative ones.

As with the multiple choice task then, findings for individual riddles did not skew overall findings in the verbal explanation task. The possibility of individual riddles skewing findings was therefore eliminated. Hence other factors had to be considered in relation to their contribution to findings. These factors, related to developmental aspects of children's humour, cognitive and linguistic growth, are discussed in section 5.3.2, following a comparison below of identification rates and explanation scores for riddles in the multiple choice and verbal explanation task.

5.3.1.5.3 Comparing individual riddle scores across tasks

Having examined the highest and lowest scoring riddles in the multiple choice task and the verbal explanation task, a comparison was subsequently made across tests. Riddles that scored highest in terms of mean scores in the verbal explanation task were compared with those that were identified most frequently in the multiple choice task. They did not correspond other than on one occasion for riddle 13: '*Why can't you ever win at cards in the jungle?*' '*Because there are too many cheaters/cheetahs*'. This would suggest that whilst some ambiguities are more easily identified (in terms of frequency), they are not necessarily as easily explained, and vice versa. This in turn supports the argument for having used a bi-fold task. Whilst the two tasks both aimed to test comprehension, they were each testing different cognitive skills (receptive and productive), which in turn had the potential to affect results (see section 3.9). Using two tasks in this way allowed the researcher to build a 'bigger picture' than had one of the tasks been used in isolation. Moreover, both productive and receptive skills were tested and both showed the same trends in ambiguity comprehension, which strengthens the findings.

5.3.2 Processing skills

Discussion thus far has centred upon external variables in terms of stimuli and the way(s) in which they were presented to participants. These variables, related to the methodology, have been shown to have had minimal, if any, effect on outcomes. Consideration is therefore now given to internal factors, such as children's developing cognitive and language processing skills, and to the ways in which these may have had a final bearing on results.

5.3.2.1 Cognitive development

As outlined in chapter 2, the transition between humour stages is said to depend not upon age per se but upon different types of cognitive development (within a Piagetian framework) (McGhee 1971a, 1971b, 1972, 1979, 1983, 2002, Fowles & Glanz 1977, Bariaud 1989).

Of particular relevance to current outcomes is a child's progression from a stage of pre-operational thought to one of concrete operations (Piaget 1950, Wadsworth 1989) which is said to occur at around 7 years of age. As children progress from the former stage to the latter, major cognitive changes take place - such as diminishing egocentrism, transformational reasoning, the ability to decentre and to reverse thinking. Such cognitive changes have been said to assist children in progressing from a humour stage where there is a strong reliance on what is visually perceived to a stage where more abstract concepts can be understood along with comprehension – and appreciation – of verbal humour, particularly that which depends upon ambiguous use of language (McGhee 1971a, 1971b, 1979, Bariaud 1989) (see section 2.5.1 for fuller discussion on how these changes are said to affect humour development).

These cognitive changes were not directly measured in the current investigation. However, the fact that they have been linked with progression from stage 4 to stage 5 humour, much of which is based on ambiguous use of language, is likely to have had some bearing on findings. This period of cognitive change is said to take place around the age of 7

(Piaget 1950, Wadsworth 1989) ie. somewhere between Year 2 (age 6-7) and Year 4 (age 8-9) in the Welsh education system. This period, during which considerable cognitive change occurs, therefore corresponds with the stage during which there was a significant difference (here an increase) in the ability to identify and explain ambiguities in the present investigation.

As earlier reported, the data here also showed something else, however, in that the youngest participants in the study, although scoring lowest on both multiple choice and verbal explanation tasks, were nonetheless still capable of identifying many (although not all) verbal ambiguities of varying types in the punchlines of riddles (49%). It is therefore tempting to speculate whether this was because the participants aged 6 and 7 were cognitively advanced or because humour development, whilst still linked to cognitive change, is not as tightly bound as previously maintained. It is also possible that variables other than cognitive change may have contributed to participant's developing humour.

As regards this issue, the reported literacy levels of participants should also be taken into consideration. Yuill (1998, 2009) and Zipke (2007) have both linked reading comprehension (as opposed to accuracy) with a flexible understanding of language and with comprehension of ambiguity-based humour. Participants in the study were recorded (as Year Groups) as having literacy levels two levels higher than the national average. It may be that stage 5 humour development is more heavily influenced by language development than previously purported. The initial links between cognitive change and humour development were first established in the 70s and 80s. It is possible that children in contemporary society have more access and exposure to language from an early age than those during the 70s/80s, thanks to the availability and development of multi-media. General language exposure (and/or riddle exposure) may in turn have contributed to lowering the age(s) at which children start to comprehend verbal humour. Although this was not readily ascertainable from the present study, current findings, as earlier discussed (section 5.2.2.2) would nonetheless suggest that the age at which children start to comprehend ambiguity-based verbal

jokes might now well prove a fruitful area for further focused investigation with participants younger than those that participated here.

5.3.2.2 Listening development

A further developmental aspect fundamental to this study is that of listening. Both multiple choice and verbal explanation tasks relied on participants' ability to listen carefully to that which had been narrated orally.

Listening has already been discussed in chapter 2 as a five step process, the stages of which are: receiving (stage 1), attending (stage 2), understanding (stage 3), remembering (stage 4) and responding (stage 5). Stages 4 and 5 of this process are optional in certain contexts, but this was not the case in the present investigation. Both multiple choice and verbal explanation tasks required participants to 'remember' and 'respond' to perceived sounds and therefore had to be accommodated within the study design in order that comprehension be measured (see section 2.6).

Participants of all ages (6-11) showed that they were able to partake in stages 1 and 2 of the listening process in terms of receiving and attending to perceived sounds. They were able to follow instructions and to carry out tasks in terms of punchline selection(s) and explanation(s). None of the participants in the study had been identified as having any kind of auditory disorder by the class teacher(s), and all participants responded appropriately to the researcher in terms of task completion, which meant that instructions were received, attended to and understood. Had participants not been able to receive, attend to (and consequently understand) language, they would not have been able to co-operate with the researcher or to take part in the study. Moreover, there was no 'fatigue' effect in ambiguity identification or explanation scores (see section 5.3.1.1), which indicates that time of sustainment did not affect any Year Group's ability to attend to perceived sounds.

There was no marked difference during Stage 4 of the listening process for participants either. This was the 'remembering' stage during which

participants were required not only to retain two different meanings in mind - whilst switching between the two - but also a riddle's interrogative together with three potential punchlines (at least in short term memory) before making a punchline selection. Although this was demanding, participants of all ages proved capable of carrying out this stage of the listening process, as judged by subsequent responses. Only twice did participants spontaneously request the re-telling of an item (ie. riddle interrogative and punchlines) and only three times did the researcher feel it necessary to offer to re-tell items for participants (following a lengthy pause and initial nil response). There were also five instances where participants made explicit reference to not remembering what they had heard/forgetting what they were going to say:

Participant 7: *'Because he because he liked liked it I can't remember what because he was um he was . . .'*

Participant 13: *'I can't remember what I was saying.'*

Participant 13: *'Um I can't remember what I was going to say again.'*

Participant 27: *' . . . he might I forgot what I was gonna I think like I was going to say like he if he might find like like he might be a going up there*

Participant 28: *'Because um oh I can't um I forgot the riddle again.'*

In total, out of 300 opportunities to select a punchline from a choice of three, and 300 opportunities to explain punchline choices, there were only 10 discernible instances of participants explicitly 'forgetting' items they had heard or what they were going to say. This finding suggests that this stage of the listening process, much like stages 1 and 2, was not too onerous for participants and affected very few. It did not appear that differences in outcomes were based at this stage of the listening process.

Rather, it was during stages 3 and 5 of the listening process that differences were seen to emerge. These differences related to the 'understanding' stage of the listening process (stage 3), which required participants to attach dual meanings to perceived sounds, and to the 'response' stage (stage 5), which

required participants to select punchlines and explain reasons behind their punchline selections. The two stages were closely related in the current study - differences occurring at stage 3 (understanding) could only be analysed through participation at stage 5 (response).

As has already been discussed, participants' responses in the two tasks indicated that the ability to identify and explain ambiguities increased with each ascending Year Group and therefore with age. Given that the older participants were more developed linguistically, an examination was made to determine whether differences occurred, at least for explanation scores, simply because older participants were more advanced in terms of productive language skills and were more capable of communicating their understanding of ambiguities to the researcher. This was true to a certain extent. Having made correct punchline selections, the percentage of participants who scored a 0 in the verbal explanation task were:

Year 2 - 27.2%

Year 4 – 9.1%

Year 6 – 6.8%

The figures therefore suggest that, even allowing for the odd lucky guess, there were individual participants who were able to identify ambiguity-based punchlines correctly but who had yet to acquire the cognitive capacity with which to reflect upon their choices, or the metalinguistic capacity with which to explain them. This effect was most marked for the youngest participants in the study in Year 2. This finding strengthens the argument for having an additional task (multiple choice) which did not rely upon productive language skills, so that participants could demonstrate their ability to identify ambiguities in the punchlines of verbal riddles.

Differences in productive language skills were not the only factor to consider when comparing outcomes for the explanation task, however. Analysis of transcripts shows that scored explanations varied according to the number of times one/two meaning(s) of an ambiguous word/phrase were

referred to by participants once they had selected a correct original punchline. Year 2 communicated both meanings of an ambiguous word/phrase 19% of the time. Year 4 communicated two meanings 58% and Year 6, 69%. It is possible that explanations containing reference to two meanings may have represented a 'fuller' understanding of an ambiguity than explanations which made only one reference and may have indicated only 'partial' understanding of a correctly chosen original punchline. Hence differences in outcomes for the verbal explanation task, whilst subject to participants' developing productive language skills, may also have arisen because of differences regarding the degree to which participants had understood an ambiguity. Some participants may have correctly chosen an original punchline through identification of only one meaning of an ambiguous word/phrase - which would suggest only partial understanding. They thus scored low on the verbal explanation task not because they were unable to communicate their understanding of two different meanings, but because they had only partially understood the ambiguity. This finding was particularly relevant in the case of idiomatic ambiguity where findings for multiple choice and explanation task rated both highest and lowest and were completely inverted for the two tasks (see earlier discussion in section 4.5.2).

When scores did not depend upon productive language skills, all participants demonstrated the ability to identify some, if not all, correct original punchlines in the multiple choice task. There was individual variation in total scores, but there were no instances of any participant scoring a zero. The fact that all participants were able to identify punchlines based on ambiguous use of language suggests that all participants were able to access dual meanings, retain different meanings and switch between meanings in order to 'make sense of' a riddle.⁶⁰ They understood that jokes relied upon some type of co-operative principle that involved the flouting of ambiguity, rather than its avoidance (Grice 1975), and were able to mentally switch to a non bona fide mode of joking communication (Raskin 1985).

⁶⁰ It has been acknowledged that a small number of responses may have been as a result of a lucky guess (see section 4.2.1).

The ability to do so was taken as evidence of understanding the ambiguity upon which any given riddle was based. The ability to ‘understand’ riddles varied across the three Year Groups, however, with the greatest (significant) difference occurring between Years 2 and 4.

Understanding in the current context did not only depend upon age however but also upon ambiguity type (see section 4.4). Findings have shown that some types of ambiguity were comprehended more readily than others and this depended upon the different types of word knowledge and processing skills required to decode them, as discussed further below.

5.3.2.3 Word knowledge

In order to identify any ambiguity in riddles’ punchlines participants needed to have acquired a certain level of word knowledge, in terms of associated meanings, in order that ambiguities, and subsequently intended humour, be perceived and processed. Discussion below therefore examines how - and whether – participants’ mental lexicon(s) and developing understanding of the concepts of homonymy and homophony might have contributed to final outcomes.

5.3.2.3.1 The mental lexicon

The ages of participants in the study increased with Year Group and therefore with older participants who would have typically acquired more words and associated meanings in their mental lexicon than the younger participants. One might thus argue that the oldest participants in Years 4 and 6 identified more original punchlines correctly because they had amassed a greater number of words and/or associated meanings in their lexicon with age/experience and were therefore able to access a greater number of word meanings. This issue had been addressed as much as was possible, however, by earlier trialling riddles in the pilot study. Riddles that contained vocabulary unfamiliar to pilot study participants had been eliminated for the final study. Although participants in the pilot study and main study varied, they were nonetheless matched in terms of Year Group(s) and age(s). Even allowing for individual variation then, the

meanings of words contained within the punchlines of riddles used in the final study should have been familiar to participants in all three Year Groups. Differences between Year Groups, in terms of ambiguity identification, should not have occurred due to older participants having a larger lexicon and/or access to more meanings.

5.3.2.3.2 Homonymy and homophony

An alternative argument which might explain outcomes is that the younger participants struggled to attach two meanings to a single aural representation because young children find homonymy and homophony difficult concepts to master. This is not necessarily the case. Studies by Beveridge & Marsh (1991) and Baksheider & Gelman (1995), show that pre-school children have the metalinguistic awareness and cognitive elasticity for accurate homophone and homonym evaluation(s). This would suggest that children younger than those in the present study are already capable of attaching more than one meaning to a single aural representation. There is a notable difference between the present study and those of Beveridge & Marsh (1991) and Baksheider & Gelman (1995) however. Neither of the aforementioned studies used homophones/homonyms in a context specifically designed to exploit ambiguity. It may well be that differences in findings occurred between the present study and those cited above, not because two different meanings had to be attached to a single aural representation, but because two different meanings had to be attached to a single aural representation that was ambiguous. Difficulties in identifying and resolving ambiguities might not necessarily have depended upon whether or not participants had acquired the dual meanings of words/phrases (although both meanings would have had to have been acquired for ambiguities to be detected). Rather, differences occurred because of the cognitive process(es) involved in having to attach two meanings to a single sound/set of sounds in a context that was deliberately ambiguous. These cognitive processes were demanding for participants and presented different types of challenges according to the types of linguistic phenomena manipulated to create humour, as now discussed below.

5.3.2.4 Layers of processing

Although processing of all ambiguity types required participants to assign two different meanings to single word(s)/string(s) of words in order that they be understood, the processes involved in retrieving and assigning the two meanings varied according to the linguistic phenomena upon which ambiguity types were based. This in turn had a bearing on the types of ambiguity that were identified and explained most successfully.

As previously reported, lexical ambiguities scored (joint) highest overall in the multiple choice task and syntactic ambiguities the lowest. This finding was duplicated when scores were combined for Year Groups 2 and 4, both of whom had the greatest range in scores across ambiguity types and for whom findings were significant. Participants aged 6-9 found lexical ambiguity easiest to identify (in that it was identified correctly most frequently) and syntactic ambiguity most difficult (although see section 4.5.2 for discussion of idiomatic ambiguity).

In the current study lexical ambiguity lay within an individual lexical item and contained no class violations. When lexical ambiguity was supplemented with a class violation, however, a further syntactical dimension was added to the ambiguity and findings were inverted for identification rates. Class violations (eg. a noun changing to a verb) required participants to focus on grammatical relationships between words at phrase level (in addition to lexeme level) in order to comprehend the intended humour. Hence the decoding of syntactic ambiguity involved an additional level of processing. In this light it is unsurprising that syntactic ambiguity was harder than lexical ambiguity for participants to identify correctly in the multiple choice task. Syntactic ambiguity scored lowest for each individual Year Group and scored considerably lower than any other ambiguity type overall (although see section 4.5.2 for discussion relating to idiomatic ambiguity).

Processing demands did not relate solely to reported findings for lexical/syntactic ambiguities of course, but to each ambiguity type tested.

Much like syntactic ambiguities, morphological and idiomatic ambiguities also required additional levels of processing. In the case of morphological ambiguities this involved not only the processing of sounds and semantic knowledge relating to individual lexemes but also the (re)processing of word structure(s)/boundaries. For idiomatic ambiguity, it involved the processing of figurative meanings in addition to literal ones. This latter process was the most difficult for participants - although not necessarily reflected by scores in the multiple choice task alone (see section 4.5.2). Analysis of transcriptions showed punchlines for this ambiguity type to have been chosen frequently on the basis of their literal meanings only.

That there was a bias towards literal meanings of idiomatic expressions supports findings of previous studies on children's idiom comprehension. Lodge & Leach (1975), Ackerman (1982), Prinz (1983), Gibbs (1987), Levorato & Cacciari (1995), Le Sourn-Bissaoui, Caillies, Bernard, Deleau & Brule (2012) all report that children have a bias towards literal interpretations of figurative language when processing idioms. This bias is influenced not only by developing language skills but also by general cognitive progression and extends until the age of 7 (Levorato & Cacciari, 1995), when children gradually start to acquire new skills in decoding figurative expressions.⁶¹ From the age of 7 the development of figurative competence continues to grow and extends beyond primary school (Cain, Towse & Knight 2009) throughout adolescence (Nippold & Rudzinski 1993, Brinton, Fujiki & Mackey 1985) and into early adulthood (Nippold & Taylor 2002). Hence the acquisition of figurative language competency is a skill which develops later in childhood as children gradually learn to progress from analysis of smaller units (ie. phonemes, words) and go beyond literal referential one-to-one relationships to identify meanings which transcend surface form.

Given the late, and protracted, development of this type of processing skill, it is unsurprising that idiomatically ambiguous original punchline selections

⁶¹ Lodge & Leach (1975) and Prinz (1983) claim these skills do not emerge until even later – around the age of 9.

were made solely on the basis of their literal meanings by so many individuals in the current multiple choice task. Participants in the study were aged 6-11. It is probable that certain individuals were not yet linguistically or cognitively advanced enough to be able to process language figuratively, whilst others, although more developed, were only part way through this protracted phase of development. The tendency to literalise meanings rather than treating them figuratively is in keeping with children's general linguistic and cognitive development and reflects general trends as described in the literature.

The type of idiom used in the current study may also have had an effect on participants' processing and comprehension of idiomatic ambiguities. Some idioms are said to be more transparent ('semantically analysable' or 'decomposable') than others. Idioms high in transparency are said to be easier for children to comprehend (Gibbs 1987, Nippold & Rudzinski 1993, Levorato & Cacciari 1999, Nippold & Taylor 2002, Cain, Oakhill & Lemmon 2005) because their meaning is discernible from an idiom's constituent parts and because of children's bias towards literalising idiomatic meanings (as discussed above). Meanings of idioms included in the current study were not readily distinguishable from the meanings of their constituent words, however, but were low in transparency (ie. '*a piece of cake*' meaning '*easy*', '*go up the wall*' meaning to '*become irate*' and '*to have a screw loose*' meaning '*mad*'). Given that this type of idiom is purportedly more difficult to comprehend and relies more upon inference from context (discussed below) than semantic analysability, the extent to which idioms in the current investigation lacked transparency may have meant that they were harder to process for participants than had they been less opaque. The fact nonetheless remains that idiomatic ambiguities (of *any* type) involve more complex processing skills than those required to process other ambiguity types (such as lexical and phonological ambiguities) and as such, are a later language skill to be acquired by children, which is reflected in the current findings.

Ordinarily sensitivity to the figurative meanings of idioms (especially those low in transparency) would be facilitated by context in non-ambiguous texts (Ackerman 1982, Gibbs 1987, Cacciari & Levorato 1989, Nippold & Martin 1989, Levorato & Cacciari 1995), but this does not necessarily hold true for riddles. The context of a riddle is a special case - it is self-contained but perfunctory and exists whilst simultaneously being suppressed. A riddle's context does not exist to inform listeners but is intentionally phrased so as to engage listeners in some type of problem-solving in order that sense is made of the ambiguous word/phrase contained within the punchline. In essence, a riddle's context is not supposed to be supportive. If it were to contain too many clues, the degree of cognitive challenge would be reduced, the 'answer' would become too obvious and any potential enjoyment might be diminished. Hence a riddle's context is deliberately constructed to obscure meaning. This in turn means that listeners are less able to use riddle contexts to help determine figurative meanings than with informative narrative texts. It could therefore be argued that figurative meanings, which are already difficult for children to comprehend, become harder still in the case of riddles simply because riddle contexts are deliberately designed to confuse rather than to elucidate. This argument holds true for each ambiguity type tested, however, and is therefore not exclusive to idiomatic ambiguity.

To conclude then, the decoding of different ambiguity types requires different processing strategies, and these in turn depend upon the type of language phenomena exploited in order to elicit humour. Some ambiguity types are more complex in that they require additional levels of processing. Current findings show that the less complex the processing demand, the more readily the ambiguity is understood (ie. phonological and lexical ambiguities). The more complex the demand, the less readily it is understood (eg. morphological, syntactic and idiomatic ambiguities respectively).

In this respect, the complexity of the humour stimulus is seen to depend upon the linguistic properties embedded within the form in which it is

delivered. Different forms require different processing skills, which can be seen to relate to, and parallel, children's earlier general language acquisition, which in turn rely upon the sequential acquisition of increasingly complex language processing skills.

For example, the first elements that children are able to decode and to acquire (around 6-18 months) when learning a language are individual sounds and words (Kaplan 1988, Hill & Kuczaj II 2011, Berger 2011). This corresponds with the finding that phonological and lexical ambiguities were comprehended most readily by participants.

As language skills then gradually advance children (around 18-36 months) subsequently start to develop their understanding of how morphology and syntax can be used to create meaning (Kaplan 1988, Hill & Kuczaj 2011, Hoff 2015). This, too, corresponds with the finding that, following lexical and phonological ambiguities, morphological and syntactic ambiguities were understood with most facility respectively.

Only once the aforementioned earlier language skills have been acquired do children (around 7-9 years) then start to develop their understanding of figurative language which goes beyond literal referential one-to-one relationships and which enables them to decode and communicate meanings which transcend surface form (Levorato & Cacciari 1995, Lodge & Leach 1975, Prinz 1983). This later stage of language development corresponds with the finding that idiomatic ambiguities were harder for participants to comprehend than lexical, phonological, morphological and syntactic ambiguities respectively. This finding is now evaluated below in order to determine how outcomes can be used in order to inform classroom practice.

5.4 Implications for classroom practice

As outlined at the start of this thesis, the benefits of using verbal riddles in the classroom are multi-fold. Judiciously applied, riddles can be used to stimulate cognitive and linguistic growth, and there is a strong argument for their inclusion as a teaching tool in the primary classroom. The new

curriculum for KS2, first implemented in September 2015, no longer makes references to ‘jokes’ or ‘riddles’ (unlike previous curricula), but specific mention is nonetheless made regarding the statutory provision of ‘texts with a variety of tone eg. humour, parody, wordplay’ (Welsh Government 2015b:5). This is vague and provides little guidance for the practising teacher. It would therefore be of benefit to know which types of ambiguity-based humour and wordplay are comprehended by children at different developmental stages across KS2. This would then enable the teacher to select resources developmentally matched to the Year Group being taught.

With this in mind, an initial aim of the study, in addition to contributing to knowledge about the way in which children’s humour develops, was to evaluate findings to determine what implications they might bear in relation to using riddles in the primary classroom in line with the dictates of the new national curriculum for the teaching of English in primary schools in Wales. Results from the current study are therefore analysed below to determine whether verbally ambiguous riddles, such as those used in the study, are developmentally appropriate for use in the primary classroom. In addition, outcomes are assessed to determine where links might be drawn between findings and statutory requirements for the provision of (a) ‘learning experiences’ and (b) ‘skills development’ for oracy as listed in the current KS2 PoS for English in Wales. Findings might then be used by teachers to assist in selecting developmentally appropriate materials in order to maximise learning opportunities for pupils whilst meeting statutory requirements as laid out in the new curriculum.

5.4.1 Using riddles in the Key Stage 2 classroom

The present investigation has focused on one specific type of humorous wordplay ie. that of the ambiguity-based verbal riddle. Results from the multiple choice and verbal explanation tasks show that children aged 6-11 are familiar with the riddle format and are able to identify and explain verbal ambiguities in the punchlines of joking riddles during their time at primary school. Their ability to do so develops incrementally with a significant developmental advance occurring between the ages of 6-7 and 8-

9 (Years 2 and 4). This would suggest that ambiguity based riddles are appropriate for use in the primary classroom with children between the ages of 6-11. More specifically, ambiguity-based riddles have been shown to be appropriate for use across Key Stage 2 (aged 7-11), given that this is the Key Stage during which accelerated development in children's ability to identify and explain verbal ambiguities occurred. This accelerated development was seen to develop at the start of KS2 (aged 7-9) although development continued at a lesser rate throughout the remainder of participants' time at primary school (aged 10-11).

The fact that participants were able to identify and explain lexical, phonological, morphological, syntactic and idiomatic ambiguities found in riddle punchlines (to varying degrees – see sections 4.3 and 4.4) would suggest that riddles based upon these five types of ambiguities are developmentally appropriate for use in the primary classroom, particularly across KS2 (aged 7-11).

Different riddles presented different levels of cognitive challenge however. Results show that identification rates and explanation scores varied according to the ambiguity type contained within riddles' punchlines. This would suggest that some ambiguity types are easier to identify (based on frequency of target selection) and to explain (based on explanation scores). Outcomes have thus been analysed to provide the following proposals relating to the order in which different types of ambiguity-based riddles might be introduced in the KS2 primary classroom in order to develop pupils' listening skills:

1st: Lexical and phonological ambiguities

2nd: Morphological ambiguities

3rd: Syntactic ambiguities

4th: Idiomatic ambiguities

Having established the order in which different types of riddles might be introduced in the classroom (according to the differing types of linguistic

properties manipulated in order to elicit humour), the discussion below next focuses on how this finding relates to curriculum stipulations as laid out in the Programme of Study for KS2 for both ‘learning experiences’ and the ‘development of skills’.

5.4.2 Using riddles to provide ‘learning experiences’

The curriculum currently stipulates that children must be provided with a varied ‘range of experiences’ for oracy, reading and writing but does not provide any guidance for teachers as to which types of stimuli/materials/activities might be employed in order to provide the stipulated ‘learning experiences’ for any given Year Group.

Analysis of participants’ performance (in both the multiple choice and verbal explanation tasks) would suggest that riddles might readily be employed in the KS2 classroom in order to meet multiple criteria for oracy ‘learning experiences’.⁶² This is because they can be used to provide opportunities for pupils to:

- a. ‘respond orally to continuous and non-continuous texts’
- b. ‘respond orally to a variety of stimuli and ideas’
- c. ‘speak and listen individually, in pairs, in groups and as members of a class’
- d. ‘engage in activities that focus on words, their derivation, meanings, choice and impact’
- e. ‘listen and view attentively responding to a wide range of communication’

KS2 English Programme of Study, Oracy, Range of Experiences (Welsh Government 2015b:2 - researcher’s own numbering)

⁶² The use of riddles might also be applied to ‘learning experiences’ for reading and writing but findings are discussed here solely in relation to oracy since this was the focus of the present investigation.

The ways in which riddles might be used to provide the above learning experiences are discussed below in terms of (a) ‘listening’, (b) ‘responding orally’ and (c) ‘word choices, meanings and impact’.⁶³

5.4.2.1 Listening

As discussed in some detail in chapter 2, orally narrated verbal riddles rely upon children’s listening skills in order that they be comprehended. Riddles therefore naturally lend themselves to classroom use in order to help develop pupils’ listening skills. As oral texts, pupils have to ‘listen carefully’ to riddles in order to perceive and attend to sounds and to assign meanings to what has been heard. Other oral texts support the development of listening skills in a similar vein, but ambiguity-based riddles are advantageous in that they make specific demands of the listener by stretching the cognitive processes involved in assigning meaning(s) to strings of sound(s). In order to ‘get’ an ambiguity-based riddle, the listener has to assign more than one meaning to a single aural representation. He is required to retain and switch between these two meanings in order to make sense of why a specific word/phrase has been included in the riddle. Hence riddles serve as a useful tool with which to stretch cognition and to help pupils to think flexibly about language rules and meaning potential(s) (see section 1.2).

5.4.2.2 Responding orally

In addition to providing pupils with listening experiences, riddles can also provide pupils with opportunities to ‘respond orally’ to what has been heard aurally – as stipulated in three of the four KS2 PoS stipulations above. As evidenced in the present study, pupils can be encouraged to communicate their understanding of the ways in which riddles make sense to them. Transcripts of participants’ explanations for punchline selections showed that participants of all ages across KS2 were able to ‘respond orally’ to riddles. For example:

⁶³ As stipulated in the PoS (Welsh Government 2015b:2).

Riddle 9

When is the best time to buy chickens?

When they're going cheep/cheap (original punchline)

Participant 5: 'Cos if cos if a chicken was um like a baby it would
(Year 2) /tʃi:p/and like in a shop if like if you went to buy it like say
if it was like forty four pound something if it went down
cheaper it would be like thirty nine pound.'

Riddle 12

Why did the schoolboy eat his homework?

Because his teacher said it was a piece of cake (original punchline)

Participant 26: 'Because people usu- usually say it's a piece of cake when
(Year 4) it's very very easy and the if the boy didn't know that he
might of actually thought it was a cake.'

Riddle 3

Why couldn't the skeleton go to the ball?

Because he had nobody/no body to go with (original punchline)

Participant 45: 'Because normally when you say someone doesn't um have
(Year 6) anybody to go with it means like they don't have like a
partner to go with but the reason it would probably it would
be a joke is because skeletons don't have bodies so they
literally they couldn't go with a body.'

Explanations such as the above exemplify the way in which verbal riddles can be used to elicit pupils' oral response(s). Explaining and discussing how riddles make sense not only gives pupils opportunities to respond orally, but also the chance to express opinions, thoughts, beliefs and understanding. Explanations of this nature can be used in the classroom to stimulate learning and cognitive development (Lombrozo 2006, Wellman 2011, Legare & Lombrozo 2014, Walker, Lombrozo, Legare & Gopnik

2014) and can be carried out individually, in pairs, in groups or as part of a whole class activity.

5.4.2.3 Word choices, meanings and impact

Discussion about how riddles make sense means that pupils have to focus on ambiguous words/phrases contained within their punchlines. When listeners are forced to contemplate the ways in which language has been used to create ambiguities, their tacit linguistic knowledge is activated and they are prompted to reflect upon language phenomena that are often implicit. That riddles promote this type of contemplation can be seen in the response(s) of participants in the present investigation. For example:

Riddle 5

How did the banana know he was ill?

He wasn't peeling well (original punchline)

Participant 38: 'Well because um you can peel a banana and um they
(Year 4) they've kind of changed the 'f' to a 'p' so it sounds like
wasn't peeling well instead of he wasn't feeling well'

(Substitute) Riddle 28

Why was the gnome told off by his mother?

He was goblin/gobbling food (original punchline)

Participant 38: 'Well because um you kind of he looks like a /gɒblɪn/and
(Year 4) /gɒblɪn/ and they've kind of changed the 'ing' to the 'in'
'n' and um it sounds quite funny.'

Riddle discussion can thus lead to contemplation of the ways in which language phenomena can be manipulated in order to consciously create ambiguities. Teachers might therefore use riddles in the classroom to introduce, correct, reinforce and consolidate metalinguistic knowledge and terminology (discussed further in section 5.4.3.2). This in turn can lead to

debate about word forms, choice, meanings and impact, thereby meeting learning experience (d) as stipulated above in the KS2 PoS.

5.4.3 Using riddles to promote skills development

Thus far discussion has focused upon the use of riddles in the KS2 classroom to provide statutory ‘learning experiences’. The benefits of using riddles extends beyond this statutory provision, however. Interlinked with learning experiences is the development of children’s language skills as detailed in the new PoS (Welsh Government 2015b).

Riddles, as short narratives (both oral and written), can be used in the classroom to provide opportunities for the development of language skills by providing opportunities for children to perform, listen, read, problem-solve, discuss, explain, compose and evaluate. As with learning experiences, findings are discussed here solely in relation to oracy since this was the focus of the present investigation.

The oracy skills that pupils are expected to developed across KS2 are currently subdivided into three different ‘aspects’, namely ‘listening’, ‘speaking’ and ‘collaboration and discussion’ (Welsh Government 2015b:3-4). Findings from the current study would suggest that riddles can be used to promote skills within each of these oracy ‘aspects’ as outlined below.

5.4.3.1 Listening

As oral narratives, riddles involve listening comprehension. They require the listener to receive, attend to, and identify strings of sounds so that meaning(s) can be attributed. The challenge of decoding sounds, words and phrases is compounded in verbal riddles, however. Verbal riddles contain ambiguous word(s)/phrase(s) to which more than one meaning has to be assigned in order that they be found humorous. This means that listeners have to listen extra carefully to make sense of an orally narrated riddle. Instead of attributing a single meaning to that which has been aurally perceived - and attended to - (as in non-humorous texts), they have to be

able to assign multiple meanings. They then have to work out how the different meanings fit into the context of a single punchline.

The ability to ‘listen carefully’ is a stipulated skill to be developed across the whole of KS2 (Welsh Government 2015b:4). As pupils enter this Key Stage they are required to ‘listen carefully and make connections between what they are learning and what they already know’ (Welsh Government 2015b:4). The riddle format is a particularly useful medium to use with learners at this stage of development because it is one already well known to children (ie. it is ‘what they already know’) and therefore allows for the development of listening skills whilst simultaneously incorporating meaning with past experience (ie. the riddling exchange).

5.4.3.2 Speaking

In common with listening skills, pupils are required to develop their speaking skills across the whole of KS2. They have to develop their ability to:

- a) ‘explain information and ideas using relevant vocabulary’ (Year 3)
- b) ‘explain information and ideas using supportive resources’ (Year 4)
- c) ‘explain information and ideas, exploring and using ways to be convincing, eg; use of vocabulary, gesture, visual aids’ (Year 5)
- d) ‘express issues and ideas clearly, using specialist vocabulary and examples’ (Year 6)

*KS2 English Programme of Study, Oracy, Speaking
(Welsh Government 2015b:3 - Researcher’s own numbering)*

Verbal riddles can be used to provide speaking opportunities for pupils meeting stipulations (a), (b), (c) and (d). By asking pupils to justify punchline selections and how they make sense the teacher can afford pupils ample opportunities to speak. For example:

Riddle 2

Why is six afraid of seven?

Because seven eight/ate nine (original punchline)

Participant 9: 'Because sometimes I'm afraid of bigger n- um bigger num-
(Year 2) well bigger people than me because it's kind of hard to talk to
them cos they might have other friends that are quite mean to
me and not mean to them so it's a bit hard for me and stuff
and it'll be hard for um six as well because seven is a higher
number and then it will be /et/ nine ten.'

Riddle 4

Why are babies good at football?

Because they can dribble (original punchline)

Participant 23: 'Because babies dribble from their mouths sometimes and I
(Year 4) get that joke because there's a type of dribbling from
footballs and baby was babies dribble from their mouths so
it's like a k- like I think they're doing I think they're like
the baby can dribble so much like basically the dr- the baby
dribbles and f- in football you have to dribble for the ball.'

Riddle 13

Why can't you ever win at cards in the jungle?

Because there are too many cheetahs/cheaters (original punchline)

Participant 54: 'Cos /tʃi:təz/ have two meanings to it as well (laughs)
(Year 6) because there's an animal /tʃi:tə/ and there's a what's it
called um (intake of breath) an an actual /tʃi:tə/ who like
cheats at something um yeah so a chea- the first /tʃi:tə/
which is like the animal which it is basically like a animal
that hunts down people and like just grabs them by the neck
and just like chomps on them a lot (mimes eating) and um
the /tʃi:tə/ one the person who like cheats well basically just

like cheats at cards just like has a f- um loads of um (?) puts them in order so he can s- like slowly grab an ace from his thing and like cheat to win.’

Although speaking opportunities were achieved on a one-to-one basis with an adult researcher in the current study, similar speaking opportunities could nonetheless be applied to different classroom contexts through paired work, group work and whole class participation.

In addition to the above, explaining how a riddle makes sense not only gives pupils the opportunity to speak per se, but also the opportunity to express personal thoughts and ideas, thus meeting stipulations (a), (b), (c) and (d) for the development of speaking skills. Each time a pupil justifies a punchline choice, he has the chance to express an opinion as to why, when coupled with a riddle’s interrogative, he finds the riddle funny. Even if he does not find the riddle humorous himself he still has the opportunity to express an opinion as to how he feels the riddle ‘operates’ in order to elicit humour.

The opportunity to express personal thoughts and ideas was, by design, mostly implicit in the current investigation. There were, however, 50 separate occasions upon which participants highlighted the fact that they were offering their own personal opinions by stating ‘I think’ or ‘I don’t think’:

Riddle 8

How was the blind carpenter able to see?

He picked up his hammer and saw (original punchline)

Participant 35: ‘You know cos a saw you could say an eye you know when (Year 4) you use your eyes to saw and you saw something or you know cos a cos he’s a carpenter you’d need to saw some of the carpet and an actual saw’s a tool and he kind of cos he um had to like see so he didn’t need to go and get some

glasses cos he saw with his eyes that's what makes it a joke
I think.'

Riddle 14

When are roads angry?

When they are crossroads/cross roads (original punchline)

Participant 36: 'Cos people cross roads and and cross meaning as cross
(Year 4) when you're really cross and you're angry with someone
and crossroads so that's why **I think** that one goes well with
that joke.'

It is true that other text types can also be used to develop children's ability to explain ideas and express opinions but riddles have a particular advantage in that they involve children using 'specialised' and 'relevant' vocabulary, a stipulation in 3 of the 4 statements above. Having to explain a riddle's 'funny' means that pupils have to focus on key words/phrases in riddles' punchlines. This involves their having to examine – and subsequently explain - how language forms and properties have been manipulated to elicit a humorous response. Talk of this nature can allow for the development of metalinguistic skills as children learn to use vocabulary to talk about different language forms. This means that riddles can be used to help develop children's metalinguistic skills as listed in the penultimate 'aspect' for Speaking in the KS2 PoS. This penultimate aspect stipulates that children are required to:

- a) 'develop their ability to use a range of syntax structures in terms of vocabulary and terminology in their talk' (Year 3)
- b) 'use a range of syntax structures, vocabulary and terminology in their talk' (Year 4)
- c) 'develop their ability to use a wide range of syntax structures, vocabulary and terminology in their talk' (Year 5)

- d) ‘use a wide range of syntax structures, vocabulary and terminology in their talk with precision’ (Year 6)

KS2 English Programme of Study, Oracy, Speaking: (Welsh Government 2015b:3 - researcher’s own numbering)

The understanding and application of different syntactical structures, vocabulary and terminology is not restricted to the ‘English’ classroom but is to be developed across the whole of the primary curriculum. If one focuses specifically on the language classroom, however, then riddles are a particularly useful medium for promoting awareness and application of different types of vocabulary, phonological realisations, metalinguistic terminology and syntactical structures. The very fact that verbal riddles depend upon the exploitation of different language phenomena means that they naturally focus attention on the ways in which ambiguity can be manifested. This in turn involves scrutiny of different language forms and arrangements. Discussion of different ambiguity types such as those employed in the current study involves contemplation and application of various metalinguistic terms ie. ‘phoneme’, ‘noun’, ‘verb’, ‘adjective’, ‘homophone’, ‘homonym’, ‘compound word’, ‘tense’, ‘idiom’, ‘figurative’. For example:

(Substitute) Riddle 16

Why did the teacher have to wear sunglasses?

Because her pupils were so bright (original punchline)

Participant 50: ‘Er because like it’s another **homophone** whi- because as in (Year 6) bright as really smart and bright as in like really like like the sun bright um light.’

Riddle 8

How was the blind carpenter able to see?

He picked up his hammer and saw (original punchline)

Participant 43: ‘Er because saw as in like the **past tense** of see and saw as (Year 6) in like something you use for cutting things.’

In this light riddles can help be used not only to develop metalinguistic knowledge but also the requisite terminology with which this knowledge might be explained – thereby meeting criteria for all four of the above stipulations.

5.4.3.3 Collaboration and discussion

In terms of collaboration and discussion, children are expected to develop the ability to ‘express opinions’ (Welsh Government 2015b: 4) across the whole of KS2 (Years 3-6). As already discussed in section 5.4.3.2 riddles can be used to provide pupils with the opportunity to ‘express opinions’. By explaining how riddles ‘make sense’, pupils are able to express personal thoughts and ideas as to why they find riddles funny and/or how they understand them. In terms of collaboration, this type of discussion can be done in pairs, groups or as whole class.

5.5 Limitations of study

Having described above the ways in which findings from the current investigation can be applied to further understanding of humour development and the implications that outcomes might have for the practising teacher, it is now time to consider any potential limitations of the research. Although careful consideration was given to each aspect of study design (see chapter 3), there were a small number of factors, beyond the control of the researcher, which posed limitations. These potential limitations are examined below.

5.5.1 Participants

Participants comprised 60 pupils from an English medium primary school in South Wales. This school was located in a predominantly middle-class area and its intake of children reflected its location. No screening took place and children of all abilities participated so that they might comprise a ‘typical’ Year Group (or class) with pupils spanning the developmental

spectrum both within and across Year Groups. It should be noted, however, that a recent report by the school inspectorate for Wales, Estyn, stated that ‘pupils’ performance in English, at this school, at the higher-than-expected levels has been consistently above the average for similar schools for four years’ and that ‘a significant number of pupils achieved standards two levels above that expected of them in English in 2014’ (Estyn 2015).⁶⁴ This report was published within a year of the data being collected. The literacy levels of participants might thus not have been representative of pupils in Year Groups 2, 4 and 6 in primary schools across the whole of Wales. If participants in the current study were generally more advanced in terms of their literacy skills than average, then their responses to both the multiple choice and verbal explanation task might have reflected their advanced linguistic and metalinguistic development – especially since reading comprehension has been linked to a flexible understanding of language (see section 5.3.2.1). It is possible that participants were able to identify and explain ambiguities more successfully than pupils would have been able to do so in schools where significant numbers of pupils do not achieve standards two levels above that expected of them although there is currently no evidence to support this.

5.5.2 Child variation

As might have been expected there was child variation in relation to the frequency with which different types of punchlines were identified and explained by participants. The overall Year Group results did not necessarily reflect this individual variation. This factor nonetheless necessarily had to be accommodated within the current study. The overall premise was to use findings to inform curriculum provision across Year Groups as opposed for individuals. Any ‘typical’ Year Group in a given school is likely to consist of a core of children at similar stages of cognitive development together with those that are developing at a slower/quicker pace. Individual variation, both within the core body and at either extreme, thus has to be factored into any curriculum, given that a classroom teacher

⁶⁴ This reference has not been included in the final list of references in order to preserve anonymity of the participating school in line with ethical regulations.

has to accommodate and cater for a wide range of abilities in his classroom on a daily basis. Although individual participants scored higher or lower than others, individual scores were not deemed to have skewed findings. This was because findings aimed to determine the order in which different types of riddles might be most developmentally appropriate for classroom application across entire Year Groups. The fact that participants comprised a core body of pupils at a similar stage of development and operating within a similar range of cognitive ability, together with those at either end of the spectrum (the ‘less’ and ‘more’ able), meant that participants were representative of a ‘typical’ class and therefore Year Group. Testing a ‘typical’ class, or Year Group, of children (with inherent child variation) meant that findings from the current study could be used to inform ‘learning experiences’ and development of skills in line with national curriculum stipulations for the teaching of English in primary schools in Wales. Moreover, the fact that identifiable trends, able to accommodate individual variation, emerged from the findings strengthens the outcomes given the context in which they were to be practically applied.

5.5.3 Ambiguity types tested

This study tested five different types of ambiguity (lexical, phonological, morphological, syntactic and idiomatic) although the original intent had been to test six different types of ambiguity. The proposed additional category was to have been ‘surface structure ambiguity’, another type of type of syntactic ambiguity (see section 2.9.6), which involves a different type of processing. It was not possible, however, to source enough stimuli containing ‘surface structure’ ambiguity which met all the other criteria for inclusion (see section 3.7.2) which meant that this category necessarily had to be eliminated from the study.

5.5.4 Numbers of riddles used to test each ambiguity type

Three examples of each ambiguity type were used to test comprehension of five discrete categories of ambiguity. This was to reduce the possibility of participants selecting a correct punchline by chance. Whilst it might have been preferable to use a higher number of examples per ambiguity type to

test comprehension (in terms of measurement advantage), the fact that each participant had to listen to (and explain) 15 riddles meant that a considerable amount of time was needed to complete the two tasks. Any inclusion of further examples across ambiguity types would have necessitated a greater number of riddles which in turn would have meant that the study would not have been completed within the timescale granted by the participating school. The main study required 15-20 minutes per participant in order to accommodate greeting, riddle discussion, task explanation, modelling of an ambiguity explanation, a 'dummy run' for each participant, the multiple choice task, the verbal explanation task, any potential questions and movement around the school. Each of the 15 riddles required not only identification of a punchline but justification of selection choice which meant that considerable cognitive and linguistic demands were placed upon each participant. It was concluded that a greater number of riddles would have constituted an 'overload on processing', particularly for some of the younger participants in the study. More riddles would have entailed a longer task which might have proved too fatiguing for some. This might have led to an increase in performance errors, in which case proficiency would have been affected by length of task rather than Year Group or ambiguity type(s). Thus time constraints, processing demands and attentional abilities contributed to a limit of 15 riddles, three per ambiguity type.

5.5.5 Riddle exposure

Although participants were asked to inform the researcher if a riddle had been heard previously, it was impossible to verify whether they had done so or not. There is the possibility that riddles had been heard previously but were not reported as such because participants either:

- (a) did not want to disclose having heard a riddle so that they could identify the original punchline successfully
- or
- (b) were not able to consciously recall having heard a riddle previously (even though they had).

The above is acknowledged. There was however no option other than to accept admissions regarding previous riddle exposure in good faith.

5.6 Issues arising and areas for future study

5.6.1 Ambiguity definitions

Early on in this study, when first reviewing the literature, one of the unanticipated key findings was that ambiguity types used to test children's humour comprehension have historically been interpreted in a variety of different ways by researchers. Previous studies often lack definitions for ambiguity types tested or else include definitions which are broad and generic and which do not always relate to the language phenomena they purport to test. This means that researchers have previously tested the same phenomena using different ambiguity classifications - or different phenomena using the same ambiguity classifications - which consequently makes it difficult to compare findings across studies.

The current study was unable to address the fact that direct comparisons across studies were limited by differing interpretations of ambiguity types. This was beyond its individual scope. It did however highlight the need for consistency in ambiguity interpretations in order that findings might be compared and contextualised across studies more readily in future to contribute to a growing body of knowledge within the field. This then led to the development of RQ1, 'In which way(s) can lexical, phonological, morphological, syntactic and idiomatic ambiguities be best defined to test children's humour comprehension?' In order to address previous inconsistencies and eliminate confusion regarding categorisation(s), precise definitions for lexical, phonological, morphological, syntactic and idiomatic ambiguities were provided. Definitions were informed by the combined analysis of published taxonomies, prior studies and linguistic phenomena manipulated to elicit humour in contemporary verbal riddles. Each definition was based upon the way(s) in which linguistic features embedded within riddle form(s) (ie. within the riddle's actual wording) contributed to producing an ambiguity and uniquely identified the type of ambiguity being

tested so as to reduce any potential interplay between different ambiguity types. This meant that the researcher could be sure of the type of ambiguity that was being tested at any given time. These definitions can now be replicated and applied to future studies in order to allow for consistency in the type of language phenomena tested. This, in turn, might allow findings to be compared and contextualised more readily across studies, thereby contributing to a more comprehensive body of knowledge within the field of children's humour development.

5.6.2 Comprehension criteria

Another unanticipated finding whilst developing the methodology was the lack of published criteria with which to measure children's comprehension in studies of this nature particularly when testing through verbal response. Although explanations have been used as a comprehension measure in previous studies, there were no clearly defined published criteria by which explanations could be judged to have communicated understanding. Whilst previous reference has been made to one or more meaning(s) being 'acknowledged' (McGhee 1971b) 'mentioned' (Shultz & Horibe 1974, McGhee 1971b), 'specified' (McGhee 1971b) or 'detected' (Shultz 1974, Shultz & Pilon 1973), there was a distinct lack of guidance as to the criteria by which these terms might be manifested (see section 3.11.9). Therefore, although not an initial aim of the current study, it was necessary to establish criteria by which to determine the extent to which meanings had been communicated by participants. This was done by analysing participants' transcribed explanations to determine the ways in which they were attempting to communicate their understanding of ambiguous meanings. Every attempt was made to accommodate the different ways in which participants endeavoured to communicate their understanding in the verbal explanation task. It was important to ensure as far as possible that participants' *understanding* was being scored as opposed to the participant's *ability to articulate* their understanding.

This difference is one which teachers have to accommodate in their assessments of children during their time at primary school, especially when

evaluations are based upon verbal response. Such verbal responses currently play a large role in oracy assessment in primary schools. Teachers are required to award each pupil with a 'level' of performance depending upon the 'responses' they provide. Each 'level' is determined by 'level descriptions' listed in the PoS for Key Stages 2-4 (Welsh Government 2015b:14). There are currently eight different levels of increasing difficulty spanning Key Stages 2, 3 and 4 - plus one to accommodate 'exceptional performance'.

In order to be awarded a level 1 for oracy pupils must be able to:

- 'listen to others and usually respond appropriately. They convey simple meanings to a range of listeners, speaking audibly, and begin to extend their ideas or accounts by providing some detail'
(Welsh Government 2015b:14)

To be awarded a level 2, pupils must be able to:

- 'show confidence in talking and listening'
- 'show awareness of the needs of the listener by including relevant detail'
- 'listen carefully and respond with increasing appropriateness to what others say'
(Welsh Government 2015b:14)

These current level descriptions are, much like assessment criteria for comprehension in earlier studies, broad and generic. Reference is made to pupils 'respond[ing] appropriately', 'convey[ing] meanings, 'includ[ing] relevant detail' and 'show[ing] they have listened carefully' but there is little indication as to how understanding or meaning is actually conveyed by young children, especially those for whom productive language skills lag behind receptive ones. It is somewhat ironic that level descriptions for performance levels 1 and 2, which would ordinarily be awarded to the youngest/less able children in KS2, are so vague. Pupils awarded these levels are likely to be those whose productive language skills are least well

developed. They are the very pupils most likely to need – and employ – different communicative strategies in order to communicate their understanding. Hence more detailed guidance would be helpful for those involved in assessing their comprehension through verbal response. A clearer understanding of the different ways in which pupils communicate understanding would help ensure that comprehension, rather than the ability to articulate comprehension is measured as closely as is possible. In this light, findings from the current study can be used to inform those whose task it is to compile criteria for the assessment of children’s listening comprehension, of the different strategies spontaneously employed by participants to communicate understanding, particularly whilst receptive comprehension skills outpace productive ones.

Communicative strategies used by participants have already been discussed at length in section 4.2.5. Some strategies were specific to a study of this nature (eg. contrastive strategies were used to highlight differences in phonemes for phonological ambiguities and differences in juncture for morphological ambiguities). Other strategies were used more generally to communicate meaning(s) for all types of ambiguities and might readily be used by children in varying contexts beyond the confines of the present investigation. For example:

- Participants used contextual illustration to convey meanings (ie. they did not describe/explain a word’s meaning but were able to give an example of it in an appropriate context)
- Participants used word stress to focus attention on individual words (ie. they did not describe/explain a word’s meaning but pronounced individual words with greater force than others in a sentence in order to focus the listener’s attention on it)
- Participants used inflections and derivations (ie. they did not directly describe/explain a word’s meaning but modified the root word so that they could use it, appropriately in context, to express different grammatical categories such as tense, person and aspect)

- Participants used ‘indirect’ means of communicating understanding (ie. they made conclusive statements which did not relate directly to the original question but which showed that it had been understood and cognitively addressed)
- Participants used gestures either instead of – or to accompany – verbal explanations (ie. participants used hand movements to communicate meanings).

This is by no means an exhaustive list of the different strategies young children employ when having to communicate understanding verbally. These strategies were employed within a specific context (ie. that of explaining the meanings of the ambiguous words in riddles’ punchlines) and there is no guarantee that, were the same investigation to be duplicated, other strategies wouldn’t emerge. However given the frequency with which they were applied, identified strategies might well merit consideration by those involved in the assessment of listening skills in young children. More specifically, they can now also be replicated and applied to future studies focusing on children’s developing humour comprehension.

5.6.3 Developing the humour model further

The way in which findings have been used to develop stage 5 of McGhee’s framework of humour development have already been detailed in section 5.2.2.3. Four sub-stages have been proposed upon advancement to (and within) stage 5 humour. Sub-stage 5a relates to the comprehension of lexical and phonological ambiguities; sub-stage 5b to morphological ambiguities; sub-stage 5c to syntactic ambiguities and sub-stage 5d to idiomatic ambiguities. Other than stage 5a, each sub-stage relates to comprehension of a single ambiguity type. The reason for sub-stage 5a comprising two ambiguity types as opposed to one is that lexical ambiguities scored highest and phonological ambiguities second highest in the multiple choice task, whereas phonological ambiguities scored highest and lexical ambiguities second highest in the verbal explanation task. Hence lexical and phonological ambiguities were identified and explained most successfully in both tasks but in inverse order. To develop the

proposed model further, future investigation might therefore specifically focus upon potential differences in the ways, and order, in which lexical and phonological ambiguities are comprehended. This might allow for this sub-stage either being further sub-divided, or else being split, to create two discrete sub-stages.

5.6.4 Bilingualism

The current investigation took place in an English medium primary school in Wales and only two pupils were reported as speaking a language other than English fluently. There are, however, many Welsh medium schools in Wales which comprise pupils that speak both English and Welsh fluently. It would therefore be of interest to carry out a comparative study in a school in which children are bilingual. One might investigate whether proficiency in two languages helps attune young children more readily to nuances in language, specifically ambiguities, than those who are monolingual.

5.7 Concluding comments

This chapter has applied the results from the multiple choice and verbal explanation task to answer the final research question, RQ4 ‘To what extent can findings be used to develop our understanding of humour development?’ Results have been analysed to show how findings can be used to simultaneously support, challenge and develop the final stage (stage 5) of McGhee’s (1979, 2002) framework of humour development.

Firstly, the finding that there was a period of accelerated development in the ability to identify and explain ambiguities occurring between Years 2 (aged 6-7) and 4 (aged 8-9) has been shown to correspond with McGhee’s (1979, 2002) existent humour framework within which children are said to transfer from Stage 4 humour to Stage 5 humour, typically around the age of 7, and first start to comprehend humour based upon ambiguous use of language (Bariaud 1989, McGhee 1971b, 1977a, 1979, 2002).

There was an additional finding here, however, in that the youngest participants (aged 6-7) were able to identify and explain more ambiguities

than might have been expected. This may have been because they were cognitively advanced, linguistically advanced or because the link between cognitive and humour development is not as tightly bound as previously believed. It may also have been due to participants having increased language exposure than those participating in earlier studies – although the degree to which such variables may have contributed to findings was not ascertainable in the current context. It is thus possible that the age during which children *start* to make the transition to stage 5 humour is earlier than accounted for in McGhee's current model (2002). This model might therefore be challenged in future in relation to the age during which transition to stage 5 humour starts to occur, through further focused investigation with participants younger than those that participated here.

Findings have subsequently been used to further develop stage 5 of McGhee's humour framework, during which children first start to understand verbal riddles based upon ambiguous use of language, and suggestions have been made as to the ways in which humour development progresses upon transition to, and within, this final humour stage. A set of four sub-stages has been proposed through which children progress upon transition to this final stage of humour development. Sub-stage 1 relates to the comprehension of lexical and phonological ambiguities and sub-stages 2, 3 and 4 relate to the comprehension of morphological, syntactical and idiomatic ambiguities respectively.

Factors, both external and internal to the child, that may have contributed to the above findings have been considered. External factors relating to the methodology have been shown to have had minimal, if any, effect on outcomes. In contrast, internal factors such as the child's developing cognitive and language processing skills have been seen to inter-relate with outcomes. In particular, outcomes have been linked to children's listening skills and to stages 3 and 5 of the listening process. Stage 3 ('understanding') is the earlier of these two stages to occur and has been shown to differ according to ambiguity type as well as age. Facility of comprehension of discrete ambiguity types has been linked to linguistic

properties manipulated to elicit humour and to the different processing demands they require in order that a verbal humour stimulus be comprehended. Results have shown that the less complex the processing demand, the more readily the ambiguity is understood (ie. phonological and lexical ambiguities) and the more complex the demand, the less readily it is understood, (ie. morphological, syntactic and idiomatic ambiguities respectively). In this respect the final stage of humour development, although a later skill to develop, has been shown to parallel children's earlier language acquisition, which, in turn, relies upon the sequential acquisition of increasingly complex language processing skills.

Outcomes, as summarised above, have subsequently been evaluated to determine how they can be used to inform classroom practice, specifically in relation to oracy skills as laid out in the current KS2 PoS for the teaching of English in primary schools in Wales (section 5.4). Suggestions have been made, based on findings, as to the order in which riddles might be used in the classroom depending upon the way in which language has been manipulated in their punchlines to produce an ambiguity. It has been suggested that lexical and phonological ambiguities be introduced first, followed by morphological, syntactical and idiomatic ambiguities respectively. Direct links have been drawn to show how riddles, when introduced in this order, can be used in the classroom to meet statutory requirements for the provision of 'learning experiences' and to help achieve anticipated outcomes in terms of skill(s) development for pupils.

The chapter has reflected upon potential limitations of findings and issues arising particular to this investigation. One of the main issues to have been highlighted was the lack of published ambiguity definitions for practical application when testing children's humour comprehension. Section 5.6.1 has explained how definitions were provided for each ambiguity type tested by specifically focusing on the way(s) in which linguistic features embedded within riddle form(s) (ie. within the riddle's actual wording) contributed to producing an ambiguity. These definitions can now be replicated and applied to future studies in order to allow for consistency in

the type of language phenomena tested which, in turn, might allow findings to be compared and contextualised more readily across studies, thereby contributing to a more comprehensive body of knowledge within the field of children's humour development.

A further issue to have been highlighted was the lack of published criteria with which to measure children's comprehension in studies of this nature particularly when testing through verbal response. Section 5.6.2 has described how this issue was tackled and has detailed how participants' transcribed explanations were analysed in order to determine the ways in which they had attempted to communicate understanding of ambiguous meanings. This has resulted in the provision of a detailed list of comprehension criteria with which to determine whether participants had been able to communicate understanding of an ambiguity. Much like the ambiguity definitions provided above, these criteria can now be duplicated in future studies on children's humour comprehension and can also be used more generally to inform those involved in the assessment of young children's listening skills through verbal response.

The chapter has concluded by suggesting areas for further study and future focused research so that findings from the thesis can now be built upon in order to further understanding of children's humour development and of different types of verbal ambiguities that children are able to comprehend at discrete developmental stages.

Reference List

- Aarons, D. (2012) *Jokes and the Linguistic Mind*. New York: Routledge
- Abrahams, D. (1972) The Literary Study of the Riddle. In: *Texas Studies in Literature and Language* 14 (1) 177-197
- Ackerman, B. (1982) On Comprehending Idioms: Do Children Get the Picture? In *Journal of Experimental Child Psychology* 33, 439-454
- Adams, S. (2008) The World's Oldest Jokes Revealed by University Research. Available at:
<http://www.telegraph.co.uk/news/uknews/2479730/The-worlds-oldest-jokes-revealed-by-university-research.html> (last accessed 7/5/17)
- Alamillo, A., Colletta, J. & Guidetti, M. (2013) Gesture and Language in Narratives and Explanations: the Effects of Age and Communicative Activity on Late Multimodal Discourse Development. In *Journal of Child Language* 40 (3), 511-538
- Allington, R., & Strange, M. (1979). Remembering is Not Necessarily Understanding in Content Areas. In *Reading Horizons* 20 (1)
- Attardo, S. (1993) Violation of Conversational Maxims and Cooperation: The case of Jokes. In: *Journal of Pragmatics* 19, 537-558
- Attardo, S. (1994) *Linguistic Theories of Humour*. Berlin: Walter de Gruyter
- Attardo, S. (1997) The Semantic Foundations of Cognitive Theories of Humor. In *Humor: International Journal of Humor Research* 10 (4), 395-420

- Attardo, S. & Chabanne, J-C. (1992) Jokes as a Text Type. In *Humor: International Journal of Humor Research* 5 (1/2), 165-176
- Attardo, S., Attardo, D., Baltes, P. & Petray, M. (1994) The Linear Organization of Jokes: Analysis of Two Thousand Texts. In *Humor: International Journal of Humor Research* 7 (1) 27-54
- Attardo, S. & Raskin V. (1991) Script Theory Revis(it)ed: Joke Similarity and Joke Representation Model. In *Humor: International Journal of Humor Research* 4 (3/4), 293-348
- Austin, J. (1962). *How to do Things with Words*. Urmson J. (ed.) Oxford: Oxford University Press
- Backscheider, A. & Gelman, S. (1995) Children's Understanding of Homonyms. In *Journal of Child Language* 22 (1) 107-127
- Barnham, K. (2010) *The World's Silliest Kids' Jokes*. London: Arcturus Publishing Limited
- Beretta, A., Fiorentino, R. & Poeppel, D. (2005) The Effects of Homonymy and Polysemy on Lexical Access: an MEG Study. In *Cognitive Brain Research* 24, 57-65
- Bariaud, F. (1989) Age Differences in Children's Humor. In *Journal of Children in Contemporary Society* 21 (112), 15-45
- Ben-Amos, D. (1976) Solutions to Riddles. In *The Journal of American Folklore* 89 (352), 249-254
- Berger, K. (2011) *The Developing Person Through the Life Span (eighth edition)*. New York: Worth Publishers
- Bergson, H. (1911) Translated by Brereton, C. & Rothwell, F. *Laughter: an Essay on the Meaning of the Comic*. London: Macmillan

- Beveridge, M. & Marsh, L. (1991) The Influence of Linguistic Context on Young Children's Understanding of Homophonic Words. In *Journal of Child Language* 18 (2), 459-467
- Binstead, K. & Ritchie, G. (1997) Computational Rules for Generating Punning Riddles. In *Humor: International Journal of Humor Research* 10 (1), 25-76
- Bird, H., Franklin, S. & Howard, D. (2001) Age of Acquisition and Imageability Ratings for a Large Set of Words, Including Verbs and Function Words. In *Behavior Research Methods, Instruments & Computers: A Journal of Psychonomic Society* 33 (1), 73-79
- Blake, B. (2007) *Playing with Words: Humour in the English Language*. London: Equinox Publishing Ltd
- Brinton, B., Fujiki, M. & Mackey, T. (1985) Elementary School Age Children's Comprehension of Specific Idiomatic Expressions. In *Journal of Communication Disorders* 18, 245-257
- British Council (2017). Receptive Skills: *available at: <https://www.teachingenglish.org.uk/article/receptive-skills> (last accessed 7/5/17)*
- Brodinsky, D. (1977) Children's Comprehension and Appreciation of Verbal Jokes in Relation to Conceptual Tempo. In *Child Development* 48, 960-967
- Buck, G. (2001) *Assessing Listening*. Cambridge: Cambridge University Press
- Cacciari, C. & Levorato, M. (1989) How Children Understand Idioms in Discourse. In *Journal of Child Language* 16 (2), 387-405

- Cain, K., Oakhill, J. & Lemmon, K. (2005) The Relation Between Children's Reading Comprehension Level and Their Comprehension of Idioms. In *Journal of Experimental Child Psychology* 90, 65-87
- Cain, K., Towse, A. & Knight, R. (2009) The Development of Idiom Comprehension: An Investigation of Semantic and Contextual Processing Skills. In *Journal of Experimental Child Psychology* 102, 280-298
- Capirci, O., Montanari, S. & Volterra, V. (1998) Gestures, Signs and Words in Early Language Development. In *New Directions for Child Development* 79, 45-59
- Carrell, A. (2008) Historical Views of Humor. In Raskin, V. (ed) *The Primer of Humor Research* , 303-332. Berlin: Mouton de Gruyter
- Ceci, S. & Friedman, R. (2000) The Suggestibility of Children: Scientific Research and Legal Implications. In *Cornell Law Review* 86 (1), 34-108
- Chiaro, D. (1992) *The Language of Jokes: Analysing Verbal Play*. London: Routledge
- Childers, J. & Tomasello, M. (2006) Are Nouns Easier to Learn than Verbs? Three Experimental Studies. In Hirsh-Pasek, K. & Glinkoff, R. (eds.) *Action Meets Word: How Children Learn Verbs*. New York: Oxford University Press
- Chomsky, N. (1965) *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press
- Coupe, P. (2013) *The Brilliant Bumper Jokes Book for Kids*. London: Arcturus Publishing Limited
- Crystal, D. (1998) *Language Play*. London: Penguin Books Ltd

- Crystal, D. (ed.) (2008) *A Dictionary of Linguistics and Phonetics (sixth edition)*. Oxford: Blackwell Publishing Ltd.
- Department for Education and Employment (1998) *The National Literacy Strategy: Framework for Teaching (second edition)*. London: Dfee
- Dienhart, J. (1999) A Linguistic Look at Riddles. In *Journal of Pragmatics* 31, 95-125
- Donaldson, G. (2015) Successful Futures. Available at: <http://gov.wales/docs/dcells/publications/150225-successful-futures-en.pdf> (last accessed 17/2/17)
- Dubinsky, S. & Holcomb, C. (2011) *Understanding Language Through Humour*. Cambridge: Cambridge University Press
- Forabosco, G. (1992) Cognitive Aspects of the Humor Process: The Concept of Incongruity. In *Humor: International Journal of Humor Research* 5, (1/2) 45-68
- Fowles, B. and Glanz, M. (1977) Competence and Talent in Verbal Riddle Comprehension. In *Child Language* 4 (3), 433-452
- Freud, S. (1905) First published in English in 1916, current copy 1991. *Jokes and their Relation to the Unconscious*. London: Penguin Books
- Gerhardt, K. & Abrams, R. (2000) Fetal Exposures to Sound and Vibroacoustic Stimulation. In *Journal of Perinatology* 20, 20-29
- Gibbs, R. (1987) Linguistic Factors in Children's Understanding of Idioms. In *Journal of Child Language* 14 (3), 569-586
- Ginsberg, K. (2007) The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds. In *Pediatrics* 119 (1).

Available at: <http://pediatrics.apublications.org/content/119/1/182.full.print> (last accessed 17/2/17)

Goatly, A. (2012) *Meaning and Humour*. New York: Cambridge University Press

Goldfield, B. (2000) Nouns Before Verbs in Comprehension vs. Production: The View from Pragmatics. In *Journal of Child Language* 27, 501-520

Goldin-Meadow, S. (2000) Beyond Words: The Importance of Gesture to Researchers and Learners. In *Child Development* 71 (1), 231-239

Goldin-Meadow, S. & Alibali, M. (2013) Gesture's Role in Speaking, Learning, and Creating Language. In *Annual Review of Psychology* 64, 257-283

Goldstein, J. (2012) *Play in Children's Development, Health and Well-being*. Brussels: Toy Industries of Europe

Goswami, U. (2008) *Cognitive Development: The Learning Brain*. New York: Psychology Press

Graven, S. & Browne, J. (2008) Auditory Development in the Fetus and Infant. In *Newborn & Infant Nursing Reviews* 8 (4) 187-193

Green, T. & Pepicello, W. (1979) The Folk Riddle: A Redefinition of Terms. In *Western Folklore* 38 (1), 3-20

Green, T. & Pepicello, W. (1984) The Riddle Process. In *The Journal of American Folklore*, 97 (384), 189-203

Grice, H. (1975) Logic and Conversation. In Cole, P. & Morgan, J. (eds.), *Syntax and Semantics III: Speech Acts*, 41-58. New York: Academic Press

Hempelmann, C. (2004) Script Opposition and Logical Mechanism in Punning. In *Humor: International Journal of Humor Research* 17 (4), 381-392

Hill, H. & Kuczaj II, S. (2011) The Development of Language. In Slater, A. & Bremner, G. (eds.) *An Introduction to Developmental Psychology (second edition)*. West Sussex: The British Psychological Society and Blackwell Publishing Limited

Hirsh-Pasek, K., Gleitman L. & Gleitman, H. (1978). Present version 1980. What did the Brain Say to the Mind? A Study of the Detection and Report of Ambiguity by Young Children. In Sinclair, A., Jarvella, R. & Levelt, W. (eds.) *The Child's Conception of Language*, 97-132. Berlin: Springer-Verlag

Hobbes, T. (1651) *Leviathan*. Current Version 1996 Gaskin J. (ed). Oxford: Oxford University Press

Hockett, C. (1972). Jokes. In Smith, M. (ed.) *Studies in Linguistics in Honor of George L. Trager* 153-178. The Hague: Mouton & Co

Hoey, M. (2005) *Lexical Priming: A New Theory of Words and Language*. Oxon: Routledge

Hoff, E. (2015) Language Development. In Bornstein, M. & Lamb, M. (eds.) *Developmental Science* (7th edition). New York and London: Psychology Press

Holt, J. (2008) *Stop Me if You've Heard This*. London: Profile Books Ltd

Jalongo, M. (2010) Listening in Early Childhood: An Interdisciplinary Review of the Literature. In *The International Journal of Listening* 24, 1-18

- Kant, I. (1790) This edition 1914 (second revised edition). Translated by Bernard, J. *Critique of Judgement*. London: Macmillan, Chapter: 54. Available at: oll.libertyfund.org/titles/1217 (last accessed 17/2/17)
- Kaplan, P. (1998). *The Human Odyssey*. St. Paul, MN: West Publishing Company
- Keith-Spiegel, P. (1972). Early conceptions of Humor: Varieties and Issues. In Goldstein, J. and McGhee, P. (eds.) *The Psychology of Humor. Theoretical Perspectives and Empirical Issues*, 5-39. New York: Academic Press
- Kidd, E. & Holler, J. (2009) Children's Use of Gesture to Resolve Lexical Ambiguity. In *Developmental Science* 12, (6) 903-913
- Klepousniotou, E. (2002). The Processing of Lexical Ambiguity: Homonymy and Polysemy in the Mental Lexicon. In *Brain and Language* 81, 205-23
- Klepousniotou, E. & Baum, S. (2007) Disambiguating the Ambiguity Effect in Word Recognition: An Advantage for Polysemous but not Homonymous Words. In *Journal of Neurolinguistics* 20, 1-24
- Klepousniotou, E., Pike, B., Steinhauer, K. & Gracco, V. (2012) Not all Ambiguous Words are Created Equal: An EEG Investigation of Homonymy and Polysemy. In *Brain & Language* 123, 11-21
- Kline, J. (1996) Listening Effectively. Available at: <http://www.au.af.mil/au/awc/awcgate/kline-listen/b10ch3.htm> (last accessed 7/5/17)
- Koestler, A. (1964) (Current edition 1976) *The Act of Creation*. London: Hutchinson & Co (Publishers) Ltd

- Larkin-Galinanes, C. (2017). An Overview of Humor Theory. In Attardo, S. (ed.) *The Routledge Handbook of Language and Humor*, 4-16.
Routledge: Oxon
- Lawler, R. (1989) Making Jokes and One Child's Learning. In *Humor: International Journal of Humor Research* 2 (3), 225-243
- Le Sourn-Bissaoui, S., Caillies, S., Bernard, S., Deleau, M. & Brule, L. (2012) Children's Understanding of Ambiguous Idioms and Conversational Perspective-Taking. In *Journal of Experimental Child Psychology* 112, 437-451
- Leech, G. (1974) *Semantics*. Middlesex: Penguin Books Ltd
- Lefort, B. (1992) Structure of Verbal Jokes and Comprehension in Young Children. In *Humor: International Journal of Humor Research* 5 (1-2), 149-163
- Legare, C. & Lombrozo, T. (2014) Selective Effects of Explanation on Learning During Early Childhood. In *Journal of Experimental Child Psychology* 126, 198-212
- Levorato, M. & Cacciari, C. (1995) The Effects of Different Tasks on the Comprehension and Production of Idioms in Children. In *Journal of Experimental Child Psychology* 60, 261-283
- Levorato, M. & Cacciari, C. (1999) Idiom Comprehension in Children: Are the Effects of Semantic Analysability and Context Separable? In *Journal of Cognitive Psychology* 11 (1), 55-66
- Lew, R. (1996a) *An Ambiguity-based Theory of the Linguistic Verbal Joke in English*. Unpublished Phd thesis. Available at:

http://www.staff.amu.edu.pl/~rlew/pub/Lew_1996_An_ambiguity-based_theory_of_the_linguistic_verbal_joke_in_English.pdf (last accessed 7/5/17)

Lew, R. (1996b) *Ambiguity-generating Devices in Linguistic Verbal Jokes* Available at: http://works.bepress.com/robert_lew/27 (last accessed 17/2/17)

Lew, R. (1997) Towards a Taxonomy of Linguistic Jokes. In *Studia Anglica Posnaniensia: International Review of English Studies*. Available at: [http://www.thefreelibrary.com/Towards+a+taxonomy+of+linguistic+jokes.+1\).-a092683475](http://www.thefreelibrary.com/Towards+a+taxonomy+of+linguistic+jokes.+1).-a092683475) (last accessed 7/5/17)

Lodge, D. & Leach, E. (1975) Children's Acquisition of Idioms in the English Language. In *Journal of Speech and Hearing Research* 18, 521-529

Lombrozo, T. (2006) The Structure and Function of Explanations. In *TRENDS in Cognitive Science* 10 (10) 464-470

Martin, R. (2007) *The Psychology of Humor: An Integrative Approach*. Burlington MA: Elsevier Academic Press

McDowell, J. (1979) *Children's Riddling*. Bloomington & London: Indiana University Press

McDonough, C., Song, L., Hirsh-Pasek, K., Golinkoff, R. & Lannon, R. (2011) An Image is Worth a Thousand Words: Why Nouns Tend to Dominate Verbs in Early Word Learning. In *Developmental Science* 14 (2), 181-189

McGhee, P. (1971a) The Role of Operational Thinking in Children's Comprehension and Appreciation of Humor. In *Child Development* 42 (3), 733-744

- McGhee, P. (1971b) Cognitive Development and Children's Comprehension of Humor. In *Child Development* 42 (1), 123-138
- McGhee, P. (1972) On the Cognitive Origins of Incongruity Humor: Fantasy Assimilation versus Reality Assimilation. In Goldstein, J. & McGhee, P. (eds) *The Psychology of Humor*, 61-80. New York: Academic Press
- McGhee, P. (1974) Development of Children's Ability to Create the Joking Relationship. In *Child Development* 45 (2), 552-556
- McGhee, P. (1976) Children's Appreciation of Humor: A Test of the Cognitive Congruency Principle. In *Child Development* 47 (2), 420-426
- McGhee, P. (1977a) A Model of the Origins and Early Development of Incongruity-Based Humour. In Chapman, A. and Foot, H (eds.) *It's a Funny Thing Humour*, 27-36. Oxford: Pergamon Press
- McGhee, P. (1977b) Children's Humour: A Review of Current Research Trends. In Chapman, A. and Foot, H. (eds.) *It's a Funny Thing Humour*, 199-209. Oxford: Pergamon Press
- McGhee, P. (1979) *Humor. Its Origin and Development*. San Francisco: W. H. Freeman & Company
- McGhee, P. (1983) Humor Development - Toward a Life Span Approach. In McGhee, P. & Goldstein, J. (eds.) *Handbook of Humor Research : Basic Issues*, 109-134. New York: Springer-Verlag
- McGhee, P. (2002) *Understanding and Promoting the Development of Children's Humor*. Iowa: Kendall/Hunt Publishing Company
- McGhee, P. (2004) *Small Medium at Large: How to Develop a Powerful Verbal Sense of Humour*. Bloomington: 1st Books

McGhee, P. & Panoutsopoulou, T. (1990) The role of Cognitive Factors in Children's Metaphor and Humor Comprehension. In *Humor: International Journal of Humor Research* 3 (4), 379-402

Merriam Webster Online Dictionary (2017) Available at:
<https://www.merriam-webster.com/dictionary/pun> (last accessed 7/5/17)

Morreall, J. (1987). *The Philosophy of Laughter and Humor*. New York: State University of New York Press

Morreall, J. (1989) Enjoying Incongruity. In *Humor: International Journal of Humor Research* 2 (1), 1-18

Murdock, B. (1962) The Serial Position Effect of Free Recall. In *Journal of Experimental Psychology* 64 (5), 482-488

Nerhardt, G. (1970) Humor and Inclination to Laugh: Emotional Reactions to Stimuli of Different Divergence from a Range of Expectancy. In *Scandinavian Journal of Psychology* 11 (1), 185-195

Nerhardt, G. (1976) Incongruity and Funniness: Towards a New Descriptive Model. In Chapman, A. & Foot, H. (eds.) *Humour and Laughter: Theory, Research and Applications*, 55-62. London: John Wiley & Sons Ltd

Nippold, M. & Martin, S. (1989) Idiom Interpretation in Isolation versus Context: A Developmental Study with Adolescents. In *Journal of Speech and Hearing Research* 32, 59-66

Nippold, M. & Rudzinski, M. (1993) Familiarity and Transparency in Idiom Explanation: A Developmental Study of Children and Adolescents. In *Journal of Speech and Hearing Research* 36 (4), 728-737

- Nippold, M. & Taylor, C. (2002) Judgements of Idiom Familiarity and Transparency: A Comparison of Children and Adolescents. In *Journal of Speech, Language and Hearing Research* 45, 384-391
- Oaks, D. (1994) Creating Structural Ambiguities in Humor: Getting English Grammar to Cooperate. In *Humor: International Journal of Humor Research* 7 (4), 377-401
- Oring, E. (1989) Between Jokes and Tales: on the Nature of Punchlines. In *Humor: International Journal of Humor Research* 2 (4), 349-364
- Ozcaliskan, S. & Goldin-Meadow, S. (2005) Gesture is at the Cutting Edge of Early Language Development. In *Cognition* 96, 101-113
- Pace-Sigge, M. (2013) *Lexical Priming in Spoken English Usage*. Hampshire: Palgrave Macmillan
- Palmer, J. (1994) *Taking Humour Seriously*. London: Routledge
- Parliament (2009) The Evolution of the National Curriculum: from Butler to Balls. Available at:
<http://www.publications.parliament.uk/pa/cm200809/cmselect/cmchilsch/344/34405.htm> (last accessed 7/5/17)
- Partington, A. (2006) *The Linguistics of Laughter*. Oxon: Routledge
- Pavio, A., Yuille, J. & Madigan, S. (1968) Concreteness, Imagery and Meaningfulness Values for 925 Nouns. In *Journal of Experimental Psychology* 1968 (76), 1-25
- Pepicello, W. (1980) Linguistic Strategies in Riddling. In *Western Folklore* 39 (1), 1-16
- Pepicello, W. (1989) Ambiguity in Verbal and Visual Riddles. In *Humor:*

Pepicello, W. & Green, T. (1984) *The Language of Riddles*. Ohio: Ohio State University Press

Piaget, J. (1950) First published in France 1947. This edition 1971.
Translated by Piercy, M. and Berlyne, D. *The Psychology of Intelligence*.
London: Routledge & Kegan Paul

Polimeni, J. & Reiss, J. (2006). The First Joke: Exploring the Evolutionary Origins of Humor. In *Evolutionary Psychology* (4), 347-366

Powell, M. (2003) *Smarties Big Book of Stupid Jokes*. London: Robinsons Children's Books

Prentice, N. & Fathom, R. (1975) Joking Riddles: A Developmental Index of Children's Humor. In *Developmental Psychology* 11(2), 210-216

Prinz, P. (1983) The Development of Idiomatic Meaning in Children. In *Language & Speech* 26 (3), 263-272

Raskin, V. (1985) *Semantic Mechanisms of Humor*. Dordrecht: Reidel Publishing Company

Redfern, W. (1984). Current version 1986. *Puns*. Oxford: Basil Blackwell Publisher Limited

Redfern, W. (1996) Puns: Second Thoughts. In *Humor: International Journal of Humor Research* 9 (2), 187-198

Reynolds, T. (2014) *Gigglers School Jokes*. London: Scholastic Children's Books

Ritchie, G. (2004) *The Linguistic Analysis of Jokes*. London: Routledge

- Rogers, J. (2012) *The Crazy Joke Book Strikes Back*. London: Red Fox Books
- Rothbart, M. (1976) Incongruity, Problem-Solving and Laughter. In Chapman, A. & Foot, H. (eds.) *Humour and Laughter: Theory, Research and Applications*, 37-54. London: John Wiley & Sons Ltd
- Ruby, L. (1966). Ambiguity. In Anderson, W. & Stageberg, N. (eds.) *Introductory Readings on Language*, 472-488. New York: Holt, Rinehart & Winston
- Saffran, J., Werker, J. & Werner, L. (2006) The Infant's Auditory World: Hearing, Speech and the Beginnings of Language. In *Handbook of Child Psychology, Cognition, Perception, and Language*, 59-95. New Jersey: John Wiley & Sons Inc
- Schopenhauer, A. (1818) This version 1969. Translated by E. Payne. *The World As Will and Representation*. Volume I. New York: Dover Publications Inc
- Sherzer, J. (2002) *Speech Play and Verbal Art*. Austin: University of Texas Press
- Shultz, T. (1974) Development of the Appreciation of Riddles. In *Child Development* 45, 100-105
- Shultz, T. (1976) A Cognitive-Developmental Analysis of Humour. In Chapman, A. & Foot, H. (eds.) *Humour and Laughter: Theory, Research and Applications*, 11-36. London: John Wiley & Sons Ltd
- Shultz, T. & Horibe, F. (1974) Development of the Appreciation of Verbal Jokes. In *Developmental Psychology* 10 (1), 13-20

Shultz, T. & Pilon, R. (1973) Development of the Ability to Detect Linguistic Ambiguity. In *Child Development* 44, 728-733

Shultz, T. & Robillard, J. (1980) The Development of Linguistic Humour in Children: Incongruity Through Rule Violation. In McGhee, P. & Chapman, A. (eds.) *Children's Humour*, 59-90. London: John Wiley & Sons Ltd

Siegler, R., DeLoache, J. & Eisenberg, N. (2011) *How Children Develop (third Edition)*. New York: Worth Publishers

Simon, F. (2010) *Horrid Henry's Hilariously Horrid Joke Book*. London: Orion Children's Books

Suls, J. (1972) A Two-Stage Model for the Appreciation of Jokes and Cartoons: An Information-Processing Analysis. In Goldstein, J. and McGhee, P. (eds). *The Psychology of Humor. Theoretical Perspectives and Empirical Issues*, 81-100. New York: Academic Press

Suls, J. (1983) Cognitive Processes in Humor Appreciation. In McGhee, P. & Goldstein, J. (eds.) *Handbook of Humor Research Volume 1: Basic Issues*, 39-57. New York: Springer-Verlag

Wadsworth, B. (1989) Fourth Edition. *Piaget's Theory of Cognitive and Affective Development*. New York: Longman

Walker, C., Lombrozo, T., Legare C. & Gopnik A. (2014) Explaining Prompts Children to Privilege Inductively Rich Properties. In *Cognition* 133, 343-357

Wellman, H. (2011) Reinvigorating Explanations for the Study of Early Cognitive Development. In *Child Development Perspectives*, 5 (1) 33-38

Welsh Government (2008) *Play Policy Update*. Available at: <http://gov.wales/topics/educationandskills/publications/guidance/3291781/?lang=en>. (last accessed 17/2/17)

Welsh Government (2015a) A Curriculum for Wales – A Curriculum for Life. Available at: http://dera.ioe.ac.uk/24680/1/151021-a-curriculum-for-wales-a-curriculum-for-life-en_Redacted.pdf (last accessed 17/2/17)

Welsh Government (2015b) Curriculum for Wales: Programme of Study for English – Key Stages 2–4. Available at: <http://learning.gov.wales/docs/learningwales/publications/150717-nc-english-en-v3.pdf> (last accessed 17/2/17)

Welsh Government (2015c) Curriculum for Wales: Foundation Phase Framework (Revised 2015). Available at: <http://learning.gov.wales/docs/learningwales/publications/150803-fp-framework-en.pdf> (last accessed 17/2/17)

West, R. & Turner, L. (2010). *Understanding Interpersonal Communication: Making Choices in Changing Times*. Boston: Wadsworth

Winter-Froemel, E. (2016) Approaching Wordplay. In Knopse, S., Onysko, A. & Goth, M. (eds.) *Crossing Languages to Play with Words*, 11-46. Berlin: Walter de Gruyter GmbH

Wiswede, D., Russeler, J. & Munte, T. (2007) Serial Position Effects in Free Memory Recall – an ERP-Study. In *Biological Psychology* 75, 185-193

Wolftstein, M. (1954) *Children's Humor: A Psychological Analysis*. Bloomington: Indiana University Press

Wolvin, A. (2012) Listening in the General Education Curriculum. In *The International Journal of Listening* 26, 122-128

- Worthington, D. & Fitch-Hauser, M. (2012) *Listening: Processes, Functions and Competency*. Oxon: Pearson Education
- Yalisove, D. (1978) The Effect of Riddles Structure on Children's Comprehension of Riddles. In *Developmental Psychology* 14 (2), 173-180
- Yuill, N. (1998) Reading and Riddling: The Role of Riddle Appreciation in Understanding and Improving Poor Text Comprehension in Children. In *Current Psychology of Cognition* 17 (2), 313-342
- Yuill, N. (2009) The Relation between Ambiguity Understanding and Metalinguistic Discussion of Joking Riddles in Good and Poor Comprehenders: Potential for Intervention and Possible Processes of Change. In *First Language* 29 (1), 65-79
- Yuill, N. & Oakhill, J. (1991) *Children's Problems in Text Comprehension: An Experimental Investigation*. Cambridge: Cambridge University Press
- Zigler, E., Levine, J. & Gould, L. (1966) Cognitive Processes in the Development of Children's Appreciation of Humor. In *Child Development* 37 (3), 507-518
- Zipke, M. (2007) The Role of Metalinguistic Awareness in The Reading Comprehension of Sixth and Seventh Graders. In *Reading Psychology* 28, (4) 375-396
- Zipke, M. (2008) Teaching Metalinguistic Awareness and Reading Comprehension with Riddles. In *The Reading Teacher* 62 (2), 128-137
- Zipke, M. (2009) Using Semantic Ambiguity Instruction to Improve Third Graders' Metalinguistic Awareness and Reading Comprehension: An Experimental Study. In *Reading Research Quarterly* 44 (3), 300-321

Appendix 1: Approved checklists for ethical practice

ENCAP Checklist for ethical practice⁶⁵

Use this checklist if you are working with data requiring attention to ethical issues, i.e. data from or about living people and not already in the public domain, and not collected anonymously. The checklist can be used as a guide while planning, to ensure you make the necessary provision. If you are able to tick all the boxes (or will easily be able to explain why an item is not applicable to your study), you should be able to gain clearance without difficulty.

Prior information	TICK
❖ Are you explaining to your participants (or their representatives) in advance what they will be undertaking to consent to?	√
○ Do you provide them in advance with information about the study, so that they consider whether they wish to participate?	√
Informed consent	
❖ Are you giving your participants (or their representatives) a consent form to sign?	√
○ Do you inform them of the purpose of the research?	√
○ Do you inform them how long it will take and what is involved?	√
○ Do you warn them of any potential risks?	N/A
○ Do you provide them with an opportunity to ask questions?	√
○ Do you tell them they can withdraw from the study at any time without giving a reason?	√
○ Do you tell them that they can inform you/the researcher at any time if they are experiencing discomfort at any point during the session?	√
○ Do you tell them how the data will be collected (e.g. audio, video, computer software).	√
○ Do you tell them how the data will be used?	√
○ Do you tell them how the data and any personal details you collect will be stored, who will have access to it, and how and when it will be disposed of?	√
○ Do you tell them that the data will be anonymised (if it will be) and/or kept confidential?	√
○ Do you tell them that they will receive information	√

⁶⁵ An electronic version of this example is available in the Research folder of both the staff and the postgraduate parts of the ENCAP Shared drive.

about the project to take away, along with your contact details in case they have any questions or concerns?	
❖ Are you satisfied that your procedures are adequate and appropriate to enable your participants (or their representatives) to give informed consent to the research you are carrying out?	√
❖ Are you satisfied that you will know if a participant does not wish to continue, and that your procedures and plans are adequate to accommodate that eventuality?	√
Debriefing	
❖ Are you giving your participants (or their representatives) a debriefing sheet at the end of the session?	Parents can request this – details given in letter
○ Does the sheet include the title of the project and the date?	
○ Does it thank the participant for taking part?	
○ Does it provide a brief description of the investigation, including the aim, hypothesis and an explanation of how their activities have contributed to it?	
○ Do you, if appropriate to the participant population, provide a list of references that could be followed up to find out more about the subject?	
○ If you withheld any information at the start of the session in order to avoid influencing the participant's behaviour, do you now explain what you did and why?	
○ Do you, if necessary, request the participant not to talk to other participants about the session or the purpose of the research, until all data has been collected?	
○ Do you provide assurances in relation to the main items on the consent form, i.e. anonymity or confidentiality, security of data, use of data, etc?	√
○ Do you remind the participant that they can ask questions?	√
○ Do you remind the participant they still have the right to withdraw from the study at any time without giving a reason, and do you explain how this wish will be actioned?	(in parental consent form/letter)
○ Do you provide your contact details? (In the case of	√

a student or research assistant, also those of the supervisor or Principal Investigator). <i>Note that researchers are advised, for their own personal safety, to use institutional rather than personal addresses, telephone numbers and email addresses.</i>	
Managing your data	
❖ Have you considered fully anonymising your data (i.e. discarding all information that identifies the participants. This enables the data to be kept indefinitely and avoids many otherwise necessary procedures)?	√
❖ If your data cannot be anonymised, do you have a clear plan about what will happen to your data at every stage from its collection onwards? For instance:	N/A
○ Where will it be stored during the data-collection period?	Personal Lap-top
○ If you make a back up copy, where will that be stored?	Personal 'Passport' 'i-cloud'
○ Will you separate out personal data from the research data, so that individuals cannot be easily identified from the latter?	√
▪ Do you have a way of coding your data files that does not identify the participants directly, and holding the key to the code in a different, secure location?	Will be anonymised
▪ When transcribing data, will you be able to replace personal information with alternates or place holders such as [NAME] and [PLACE] so that those reading the transcription cannot identify the individual?	√
▪ When referring to participants, will you systematically omit information not directly relevant to the analysis?	√
○ Do you have the lockable cupboards you need to keep hard copy data securely?	N/A
○ Do you know how to password protect or encrypt your material?	N/A
○ Do you know exactly who will have access to the data, when and why?	√
○ Do you have a procedure for briefing/reminding all individuals with access to any of the data about data security and confidentiality? (remember that this may include transcribers, supervisors and co-authors)	Data to be anonymised
○ Have you developed a clear plan about how long the data will be kept and what will happen to it when it is no longer needed?	√
○ Are you clear about what wording on your consent	√

forms permits you to do in, e.g. sharing data with other researchers in the future for other projects? If you anticipate wanting to share data, have you ensured you make this possible through the wording of the consent form?	
○ Are you aware of the restrictions on holding personal data associated with the Data Protection Act? (Please see Appendix III in this guide for more details).	√
○ Are you clear about the circumstances under which data might be used in the public domain (e.g. video clips at a conference, quotes in a published paper)?	√

Proposal Form B: Full approval⁶⁶

Use this form if your research involves vulnerable participants or requires deception, or where there is some other reason for ensuring full approval is gained (e.g. as part of a funded project).

Submitted by: Staff UG PG (Masters) PG (MPhil or **PhD**)
(Select/circle as appropriate)

Date: 22 March 2013

Researcher's Name: Giulia Baker

Principal Investigator/Supervisor if different: Michelle Aldridge-Waddon

Project Title: 'Do you get it?' A study into children's developing ability to decode different types of linguistic ambiguity in verbal jokes across Key Stage 2 (KS2) and the implications this has for the application of wordplay in the Primary Curriculum

Proposed dates of research: TBC – November 2013

Pilot Study : May 2013

Reasons for choosing Full approval route (please tick):

	Tick
I will be gathering personal data about individuals (e.g. names, contact details, biographical or educational information, or other personal information) that needs to be held securely.	√
I will be gathering opinions, or making observations or measurements of individuals' behaviour.	√
My participants are under 18 years of age.	√
My participants are members of a vulnerable group.	x
My participants are in a temporarily in a vulnerable situation.	x
My procedures entail deception.	x

Indicate whether the following basic procedures have been/will be adhered to:

	Tick
Completion of the checklist, with no issues arising other than those identified on this form	√
All the participants or their representatives will sign a consent form	√
The procedures will fully comply with the information given in the consent and debriefing documents	√
Students and research assistants: I have fully discussed this project and this application with my supervisor/the Principal Investigator	√

You will be required to discuss your plans with a member of the Ethics Committee. Please indicated below any specific issues you would like to include in that discussion.

⁶⁶ An electronic version of this example is available in the Research folder of both the staff and the postgraduate parts of the ENCAP Shared drive.

Brief description of the research:

1. Aim, hypothesis:

The study aims to investigate different types of verbal ambiguity used in children's jokes and to seek to establish when children understand these different types of ambiguity. The implications of findings will be analysed in relation to the application of wordplay in the National Curriculum.

2. Description of participants, how they will be recruited. Indicate if any screening is required (e.g. hearing, handedness, cognitive abilities) in order to determine eligibility to participate.

30 children from Years 2, 4 and 6 of a local primary school (90 children in total). No screening will be required in order to determine eligibility to participate.

3. Explain why it is necessary to use this group rather than a non-vulnerable group.

Children of this age have been selected because they are at the relevant stages of cognitive development for different stages of humour comprehension and because they span the primary age-group to whom jokes are to be taught as part of the literacy curriculum. Testing a whole class of children for group results will provide information about which types of ambiguity a particular Year Group is able to comprehend – the findings can then be considered in relation to literacy requirements pertinent to particular Year Groups as detailed in the Primary National Curriculum.

4. (If applicable) Measures being taken in relation to protection of participants and gaining informed consent (e.g. presence or advocacy of a responsible adult; consent from head teacher, care home manager, local authority or health service, etc.)

Consent of headteacher obtained

Written parental/guardian consent for each child will be obtained

Researcher has full CRB Certificate

5. Summary of method. Explain any risks to the participants or researcher associated with this method and how they will be minimised.

Each child will be read 12/15 jokes and given a choice of punchlines. Their choice of punchline will be recorded by the researcher and they will then have the opportunity to explain the reason for making their choice. Their explanations will be recorded and later transcribed.

6. If deception is involved, explain what and why, and how you will debrief participants afterwards

N/A

7. Type(s) of information that will be obtained and in what format. Will it be anonymised or only held confidentially?

Explanations will be recorded and transcribed. Data will then be anonymised and stored on personal laptop and passport – accessible only to researcher and supervisor

8. If you are using an existing dataset, indicate why the data require consideration from the point of view of ethics, and how you have obtained them.

N/A

9. If you are applying/have applied for ethics clearance from another organisation (e.g. a Health Authority, Local Education Authority, or Ethics Committee in another School or institution), give details below, including (anticipated) date of outcome. If you have prepared documents for that purpose and can append them here, please do. Similarly, if you have prepared an ethics statement for a funder in relation to this project please append it.

N/A

Remember to append the following documents as applicable:

- A copy of any application made for ethics clearance to another body
- A copy of the ethics statement made to the funder in relation to this project

Be prepared to supply, if requested, a copy of:

- the checklist
- the consent form
- the debriefing document
- examples of the materials being used (e.g. questionnaire, stimuli)

Appendix 2: Letter/consent form for participation in main study

HUMOUR DEVELOPMENT AT (ANONYMISED) PRIMARY SCHOOL

Dear Parent/Carer

My name is Giulia Baker. I am a primary school teacher and my daughter attends (anonymised) School. I am currently undertaking a PhD at the Centre for Language Communication and Research at Cardiff University.

I am writing to you to seek consent for your child's participation in a study I am carrying out on children's linguistic/humour development. The aim of the study is to determine if there is an order in which children understand different types of verbal ambiguity and how this might inform the teaching of 'wordplay' in the national curriculum.

The study would involve your child being read 15 joking riddles and being offered a choice of punchlines to select from. All the jokes have been carefully selected to ensure that they are age appropriate and make no reference to sensitive or offensive matters. Each child will then have the opportunity to explain why they have chosen a particular punchline. The children's explanations will be recorded and later transcribed for analysis. Children will not be participating to see if they can come up with a 'right' or 'wrong' resolution, rather it is an opportunity for them to share their understanding and ideas of what it is that constitutes a joke for children of their age-group – this will be explained to them. Children will be free to ask questions at any stage throughout the study and questions will be answered in terms appropriate to their level of understanding. The 'joke' format should prove an enjoyable one for the children but should any child show any sign of feeling upset or uncomfortable at any stage, the study will be stopped immediately.

Research indicates that reading comprehension affects children's abilities to comprehend ambiguity-based jokes (and vice versa). If you consent for your child's participation, it entails their current reading levels being made available for the study. The person collecting the data will be informed of these levels but from the recording onwards it will be anonymised so that is impossible to trace levels or comments back to individual children. Results will be reported as groups rather than individually and the anonymised data will be stored on a single laptop, accessible only to myself and my supervisor. Data may be kept indefinitely but any quotes or findings that may be later used for items such as journal articles or conference papers will all be anonymous – in any such instances ***neither school, nor individuals will be identifiable***. However an individual's data can always be deleted if a request is made. When the study has been completed in full, any parent is welcome to request a copy of the findings.

Participation in this study is entirely voluntary. No child will take part unless a completed consent slip has been returned and parents are free to withdraw their child at any stage should they have a change of heart about

their participation - (please use the contact details below if this is the case). The study will take place week commencing Monday 25th November - hence I require consent slips to be by **Friday 22nd November** at the latest. Due to the unpredictable nature of response uptake, should a considerable number of parents wish their child to participate it may be necessary to select participants according to the order in which consent forms are returned - although every effort will be made to accommodate those who show interest in taking part. Please note that even if your child wishes to take part on the day (something which frequently occurred during the pilot study), they will be unable to do so without having returned a completed form.

If you agree to your child taking part in the study, please could you sign the consent form attached and return it to school. Should you have any questions or concerns about any part of this study before this date, please feel free to contact either myself (BakerG4@cardiff.ac.uk) or my supervisor, Dr Michelle Aldridge-Waddon (AldridgeM@cf.ac.uk). I appreciate that there is a lot of information on both this letter and the attached consent form for what is a relatively straightforward (and fun) activity but this has been included to ensure that you have all the information you require in order to make an informed decision regarding consent.

Finally, if you agree to your child's participation, he/she might find it fun to share a favourite joke of their own at the start of their session an icebreaker - so it would be helpful if you could discuss this with them beforehand.

Many thanks.

GIULIA BAKER

CONSENT FORM FOR STUDY IN HUMOUR DEVELOPMENT

In signing this form I confirm that I have parental responsibility for the participant below:

Name: Class

Languages (other than English) Spoken fluently at home:

I understand that participation of the above-named individual in this project will involve him/her listening to 15 jokes and choosing a punchline for each one from a selection of three. His/her explanations will be recorded and later transcribed for analysis.

I understand that participation in this study is entirely voluntary and that I can withdraw my agreement for the above-named individual to participate at any time without giving a reason.

I understand that I am free to ask questions at any time and that should the above-named individual experience feel uncomfortable during participation then the activity will be terminated in a sensitive and appropriate manner.

I understand that the information provided in relation to this study (including reading levels and individual comments) will be held totally anonymously so that it is impossible to trace this information back to the above-named individual. I understand that this information may be retained indefinitely.

I understand that at the end of the study I am able to request a copy of the findings.

I,(PRINT NAME)
consent to permit the participation of the above-named individual in the study conducted by Giulia Baker, School of English, Communication & Philosophy, Cardiff University (under the supervision of Dr Michelle Aldridge-Waddon.

By this consent, and any subsequent actions of mine as outlined above, I affirm that I am acting in the best interests of the above-named individual.

Signed:.....

Date:.....

Appendix 3: Definitions of ambiguity types for the purpose of the current study

Lexical Ambiguity

Lexical ambiguity occurs solely within the alternative meaning of an individual lexical item and does not rely upon grammatical analysis at phrase/clause/sentence level. It occurs when a singular word has more than one meaning without any class violation. This type of ambiguity encompasses homonyms, homophones and polysemes since when relayed orally, all three carry the same sound but different meanings.

Example: Why are babies good at football? Because they can dribble.

Phonological Ambiguity

Phonological ambiguity occurs when the ambiguous fragment of riddle text has two non-identical phonetic forms for the two alternative interpretations. The modification of the phonetic form can comprise the addition, deletion or substitution of a phoneme. It does not involve modification of phonetic form across word boundaries and is contained within a single lexical item.

Example: What do whales eat for dinner? Fish and ships.

Morphological Ambiguity

Morphological ambiguity occurs when there are changes in morpheme boundaries for the two readings of the text. Other than variation in stress or juncture, the ambiguous fragment of the riddle has identical phonetic forms for the two alternative interpretations.

Example: Why did the jelly wobble? Because it saw the milkshake/milk shake.

Syntactic Ambiguity

Syntactic ambiguity occurs when two different underlying syntactic structures are mapped onto a single surface structure. The two different syntactic representations reflect different underlying grammatical relations between lexical items. Syntactic ambiguity relies upon grammatical analysis at whole phrase, clause or sentence level.

Example: How was the blind carpenter able to see? He picked up his hammer and saw.

Idiomatic ambiguity

Idiomatic ambiguity occurs when the figurative meaning of an idiom is confused with the literal meanings of its individual lexical components.

Example: What does Spiderman do when he's angry? He goes up the wall.

Appendix 4: Riddles trialled in the pilot study

Key

Original Punchline underlined

Plausible Punchline in Bold

Irrelevant Punchline in italics

Riddle 1

Why did the robot act silly?

Because he was in a daft mood

Because he had a screw loose

Because he liked apples

Riddle 2

Why is six afraid of seven?

Because seven eats fish

Because seven ate/eight nine

Because seven is bigger

Riddle 3

Why couldn't the skeleton go to the ball?

He had no body/nobody to go with

He was too cold

It was past his bed-time

Riddle 4

How do footballers stay cool?

They clean their teeth

They drink cold drinks

They have a lot of fans

Riddle 5

How did the banana know he was ill?

He wasn't peeling well

He had a high temperature

He looked out of the window

Riddle 6

Why did the jelly wobble?

Because someone shook the plate

Because it saw the milk shake/milkshake

Because it was midnight

Riddle 7

What does spiderman do when he's angry?

He turns on the radio

He goes up the wall

He stamps his feet

Riddle 8

Why are babies good at football?

Because they can dribble

Because they kick their legs

Because they like music

Riddle 9

What's a mouse's favourite game?

Hide and squeak

Time for bed

Hunt the Cheese

Riddle 10

How was the blind carpenter able to see?

He went to the circus

He picked up his hammer and saw

He put on his glasses

Riddle 11

When is the best time to buy chickens?

When the tide is out

When they are fresh

When they're going cheap/cheep

Riddle 12

What do whales eat for dinner?

Fish and ships

Tasty sea creatures

Big earrings

Riddle 13

Why did the jockey take hay to bed?

To lie on top of it

To feed his night mare/nightmare

To put out the light

Riddle 14

Why do leopards make rubbish thieves?

Because they smell of roses

Because they always get caught

Because they're always spotted

Riddle 15

Who stole the sponge from the bathroom?

The robber duck

The pizza delivery man

The bathroom thief

Riddle 16

Why did the schoolboy eat his homework?

His friend said it tasted nice

His teacher said it was a piece of cake

His mum liked singing in the bath

Riddle 17

Why did the tin whistle?

Because only a tin can

Because he liked the sound

Because the dog bit him

Riddle 18

Why can't you ever win at cards in the jungle?

Because there are so many wild animals competing

Because it snows on the mountains

Because there are too many cheetahs/cheaters

Riddle 19

When are roads angry?

When the birds are singing

When they are cross roads/crossroads

When you annoy them

Riddle 20

Why couldn't the poppy seed leave the bowling alley?

Because he hadn't finished bowling

Because the sausages were cooked

Because he was on a roll

Appendix 5: Riddles used in the main study

Key

Original Punchline underlined

Plausible Punchline in Bold

Irrelevant Punchline in italics

Riddle 1

Why did the robot act silly?

Because he was in a daft mood

Because he had a screw loose

Because he liked apples

Riddle 2

Why is six afraid of seven

Because seven eats fish

Because seven ate/eight nine

Because seven is bigger

Riddle 3

Why couldn't the skeleton go to the ball?

He had no body/nobody to go with

He was too cold

It was past his bed-time

Riddle 4

Why are babies good at football?

Because they can dribble

Because they kick their legs

Because they like music

Riddle 5

How did the banana know he was ill?

He wasn't peeling well

He had a high temperature

He looked out of the window

Riddle 6

What does spiderman do when he's angry?

He turns on the radio

He goes up the wall

He stamps his feet

Riddle 7

Why did the jelly wobble?

Because someone shook the plate

Because it saw the milk shake/milkshake

Because it was midnight

Riddle 8

How was the blind carpenter able to see?

He went to the circus

He picked up his hammer and saw

He put on his glasses

Riddle 9

When is the best time to buy chickens?

When the tide is out

When they are fresh

When they're going cheap/cheep

Riddle 10

What do whales eat for dinner?

Fish and ships

Tasty sea creatures

Big earrings

Riddle 11

Why do leopards make rubbish thieves?

Because they smell of roses

Because they always get caught

Because they're always spotted

Riddle 12

Why did the schoolboy eat his homework?

His friend said it tasted nice

His teacher said it was a piece of cake

His mum liked singing in the bath

Riddle 13

Why can't you ever win at cards in the jungle?

Because there are so many wild animals competing

Because it snows on the mountains

Because there are too many cheetahs/cheaters

Riddle 14

When are roads angry?

When the birds are singing

When they are cross roads/crossroads

When you annoy them

Riddle 15

What's a mouse's favourite game?

Hide and squeak

Time for bed

Hunt the Cheese

Substitute Riddles

(Substitute riddles were used when participants had previously heard one of the 15 original riddles)

Substitute riddles based on lexical ambiguity

Riddle 16

Why did the teacher wear sunglasses?

Because it was sunny

Because her pupils were so bright

Because she had to walk to school

Riddle 17

What do you get if you cross a sheep with a trampoline

A woolly jumper

A bouncy sheep

A long-haired sheep

Riddle 18

Why did the lion spit out the clown?

Because the bells were ringing

Because he tasted funny

Because he was too salty

Riddle 19

Why was Cinderella kicked out of the football team?

She didn't practice enough

They met on Thursdays

She kept running away from the ball

Substitute riddles based on phonological ambiguity

Riddle 20

What is a hedgehog's favourite snack?

Prickled onions

A pair of jeans

A saucer of milk

Riddle 21

Where does a short sighted frog go?

To buy some glasses

To the hoptician

To the swimming pool

Riddle 22

What's green and goes camping?

A frog on holiday

A Brussels scout

A palm tree

Riddle 23

What did one pencil say to the other pencil?

I've got to write

I've got a new teddy

I've got a headache

Substitute riddles based on morphological ambiguity

Riddle 24

What do you call a sleeping child?

An energetic person

A tired toddler

A kid napper/kidnapper

Riddle 25

What kind of dog always has a high temperature?

A hot dog/hotdog

A dog in the sun

A noisy dog

Riddle 26

Where do footballers go dancing?

At a disco

At a foot ball/football

At the supermarket

Riddle 27

What sort of ball doesn't bounce

A snow ball/snowball

A ball that has gone flat

A striped ball

Substitute riddles based on syntactic ambiguity

Riddle 28

Why was the gnome told off by his mother?

He was very naughty

He was goblin/gobbling food

He was too tall

Riddle 29

What happens to frogs when they break down

They eat a sandwich

They phone for help

The get toad/towed away

Riddle 30

Why did the coffee taste like mud?

Because it was happy

Because it was ground this morning

Because it was brown and sticky

Riddle 31

What happens if you take away a tortoise's food?

You make him fast

You make him sing

You make him hungry

Substitute riddles based on idiomatic ambiguity

Riddle 32

Why did the comedian tell jokes to eggs?

He thought they'd enjoy them

He wanted to crack them up

He had to go to bed

Riddle 33

What happens to a witch when she loses her temper?

She flies off the handle

She goes to the supermarket

She gets really cross

Riddle 34

Why is there no point playing jokes on snakes?

They live in the desert

You can't pull their legs

They don't like jokes

Riddle 35

What does a caterpillar do on new year's day?

Find a new cabbage to eat

Buy a new hat

Turn over a new leaf

Appendix 6: Scoring information for independent raters

SCORING INFORMATION FOR INDEPENDENT RATERS

Thank you for acting as an independent rater for this study. Your participation as a rater is voluntary and you are able to withdraw at any stage. You will not be identified in the write-up of the study. The study aims to investigate children's ability to comprehend and explain riddles based on different types of ambiguity. The children who have supplied the data vary in age from 6 to 11 and are referred to below as 'participants'.

Transcriptions

Each participant has completed an oral multiple choice activity. They listened to a riddle question read aloud by the researcher followed by three potential punchlines, one of which was the riddle's original punchline. Participants were asked to choose the punchline (answer) which they thought that, when combined with the question, made the communication a riddle (as opposed to a bona fide question-answer exchange). They were then asked to explain the reason for each choice and explanations were transcribed for subsequent analysis.

Your job as a rater is to attribute a comprehension score for each explanation. The score will be a 0, 1, 2 as detailed in the 'Comprehension Scores' on the following page. Comprehension is to be determined by studying the transcription of each participant's explanation. In instances where a **homophone** is the basis for ambiguity, the ambiguous word is transcribed **phonetically** since spelling it orthographically would necessitate choosing one of two possible homophones (eg. did the participant mean *cheater* or *cheetah*?) In instances of morphological ambiguity (such as *milk shake* or *milkshake*), word boundaries are recorded according to **junction** used by individual participants. Any words that participants deliberately stressed (i.e. that varied notably from conventional stress patterns) are underlined. Any gestures that were used by participants to support their verbal explanations are recorded in parenthesis. Use of stress and gesture are to be included in raters' assessments of comprehension.

Riddles are numbered 1 to 15 in the transcriptions in the order in which they were read aloud to participants. Although participants chose punchlines for all 15 riddles, raters are only being given explanations to score when the original ('correct') punchline was selected. Numbers of explanations per participant are therefore subject to variation. A list of all the riddles and punchlines used in the study entitled 'Riddle Questions and Answers' is attached. When a participant had previously heard a riddle, an alternative was read aloud from a separate list. This list is also attached and entitled 'Substitute Riddles'.

Definition of Terms Used Above

Homophone(s): Words which have the same phonological form (sound the same) but different orthographical forms (are spelt in different ways) and have different meanings. For example, *eight* (numerical digit) and *ate* (past tense verb form ‘to eat’).

Juncture: the timing and pause length of/between utterances which distinguishes between two otherwise identical sequences of sounds that differ in meaning. For example, *milk shake* (noun + verb construction) and *milkshake* (compound noun construction).

Phonetically: Representing the sounds of speech with symbols corresponding to their sound (as opposed to using English spelling conventions). Each time this occurs the phonetic transcription is recorded between slash brackets. For example, *cheap/cheep* is recorded as */tʃi:p/*.

Comprehension Scores

Each explanation is to be given a score of 0, 1 or 2. The scores are detailed below. If a rater is unable to assign a score for any explanation, it is to be annotated 'Other' for subsequent discussion.

Scores

0 - Does not explain or make reference to either of the two intended meanings of ambiguous word/phrase. For example:

'I just guessed'
'Um I'm not really sure why I chose that'

1 - Explains or makes reference (according to criteria below) to one meaning of ambiguous word/phrase. For example:

Why did the robot act silly?
Because he had a screw loose

Participant: *'Because um robots have lots of screws and it just sounds funny.'*

Researcher: *'And anything else?'*

Participant: *'No.'*

When is the best time to buy chickens?
When they're going cheap/cheep

Participant: *'Because they're less money.'*

Researcher: *'And anything else?'*

Participant: *'No.'*

2 – Explains or makes reference (according to criteria below) to both meanings of ambiguous word/phrase. For example:

Why was seven afraid of eight?
Because seven ate/eight nine

Participant: *'Because um when they say seven /eit/ nine it's saying that seven um starts eating other numbers but then /eit/ is also the number after seven so they said seven , /eit/ , nine.'*

What's a mouse's favourite game?
Hide and squeak

Participant: *'Cos mice squeak and there's a game called hide and seek.'*

Comprehension Criteria

A participant may be judged to have comprehended one or more intended meanings of an ambiguous word or phrase if they use any of the strategies listed below. Some participants may use a combination of strategies but only one strategy need be evident in order to award a score.

- 1) Participant explains/defines/describes the meaning(s) of an ambiguous word or phrase. For example:

***When is the best time to buy chickens?
When they're going cheap/cheep***

Participant: *'Cos I think cheeping is a noise that hens make but then going /tʃi:p/ means they're not that expensive.'*

- 2) Participant gives an example of the word in context. For example:

***Why can't you ever win at cards in the jungle?
Because there are too many cheetahs/cheaters.***

Participant explanation: *'Because um in in if you play cos sometimes when you play cards there's loads of /tʃi:etəz/*

(Highlighted text denotes use of word in context. Note that context is not highlighted in participants' transcriptions - it is up to raters to determine whether a word/phrase has been used appropriately in a relevant context so as to convey comprehension of a given meaning.)

- 3) Participant makes specific reference to phonemes which, having been added, deleted or substituted, consequently alter the meanings of word(s) upon which an ambiguity hinges. For example:

***How did the banana know he was ill?
Because he wasn't peeling very well***

Participant: *'Well because you can peel a banana an- and they've kind of changed the f to a p so it sounds like he wasn't peeling well instead of he wasn't feeling well.'*

- 4) Participant uses stress to indicate differences in meaning. For example:

***Why did the teacher have to wear sunglasses?
Because her pupils were so bright***

Participant: *'Because the term bright means they're clever or it means that somethings's um quite a light say like a light light.'*

- 5) Participant uses differences in juncture to indicate differences in meaning (eg. milkshake and milk shake). For example:

Why did the jelly wobble?

Because it saw the milk shake/milkshake

Explanation: *'Because it's a milkshake. You shake it and then the um of whatch- um the blender and it make the milk milk shake and the jelly usually wobbles and he saw the milk shake so he wobbled.'*

- 6) Participant uses recognisable gestures (as annotated in the transcription) to convey meaning of word. For example:

Why are babies good at football?

Because they can dribble

Participant: *'Cos um dribble as in like dribble (points to mouth) and you dribble as in dribbling (mimes kicking a football)*

- 7) Participant does not use ambiguous word itself but uses inflections/derivations to create new words (eg. cheater → cheat, cheats, cheating, cheated) which illustrate understanding of root word. For example:

Why can't you ever win at cards in the jungle?

Because there are too many cheetahs/cheaters

Participant: *'Cos there are /tʃi:eiɾəz/ in the um jungle*

Researcher: *'What what is a /tʃi:eiɾə/ in the jungle?'*

Participant: *'It's an animal and cheat is you cheat at something.'*

- 8) Participant gives an answer that shows indirect evidence of comprehension of one or more meanings of ambiguous word or phrase even though the word/phrase is not directly referred to. For example:

When is the best time to buy chickens?

When they're going cheap/cheep

Participant: *'I chose that one because chickens can go like /tʃi:p/ /tʃi:p/ and a /tʃi:p/ chicken would be quite good for Christmas dinner.'*

Researcher: *'And why would a /tʃi:p/ chicken be good for Christmas dinner?'*

Participant: *'Because you don't then you have more money to spend on presents.'*

(The inference here is that you have more money to spend on presents because cheap chickens cost less money – even though this meaning is not explicitly stated)

- 9) Ambiguous word/phrase is identified by participant as the basis of deliberate punning even though participant is unable to fully explain one or more meanings. For example:

***Why did the robot act silly?
Because he had a screw loose***

Participant: *'Um because robots have screws in them and a screw loose is like a saying and . . .'*

Researcher: *'Can you explain what that saying means?'*

Participant: *'No.'*

RIDDLE QUESTIONS AND ANSWERS

Original riddle punchline is underlined.

1. ***Why did the robot act silly?***
Because he was in a daft mood
Because he had a screw loose
Because he liked apples

2. ***Why is six afraid of seven***
Because seven eats fish
Because seven ate/eight nine
Because seven is bigger

3. ***Why couldn't the skeleton go to the ball?***
He had no body/nobody to go with
He was too cold
It was past his bed-time

4. ***Why are babies good at football?***
Because they can dribble
Because they kick their legs
Because they like music

5. ***How did the banana know he was ill?***
He wasn't peeling well
He had a high temperature
He looked out of the window

6. ***What does spiderman do when he's angry?***
He turns on the radio
He goes up the wall
He stamps his feet

7. ***Why did the jelly wobble?***
Because someone shook the plate
Because it saw the milk shake/milkshake
Because it was midnight

8. ***How was the blind carpenter able to see?***
He went to the circus
He picked up his hammer and saw
He put on his glass

9. ***When is the best time to buy chickens?***
When the tide is out
When they are fresh
When they're going cheap/cheep
10. ***What do whales eat for dinner?***
Fish and ships
Tasty sea creatures
Big earrings
11. ***Why do leopards make rubbish thieves?***
Because they smell of roses
Because they always get caught
Because they're always spotted
12. ***Why did the schoolboy eat his homework?***
His friend said it tasted nice
His teacher said it was a piece of cake
His mum liked singing in the bath
13. ***Why can't you ever win at cards in the jungle?***
Because there are so many wild animals competing
Because it snows on the mountains
Because there are too many cheetahs/cheaters
14. ***When are roads angry?***
When the birds are singing
When they are cross roads/crossroads
When you annoy them
15. ***What's a mouse's favourite game?***
Hide and squeak
Time for bed
Hunt the Cheese

Substitute Riddles

(Substitute riddles were only used when participants had previously heard one of the 15 original riddles)

Substitute riddles based on lexical ambiguity

Riddle 16

Why did the teacher wear sunglasses?

Because it was sunny

Because her pupils were so bright

Because she had to walk to school

Riddle 17

What do you get if you cross a sheep with a trampoline

A woolly jumper

A bouncy sheep

A long-haired sheep

Riddle 18

Why did the lion spit out the clown?

Because the bells were ringing

Because he tasted funny

Because he was too salty

Riddle 19

Why was Cinderella kicked out of the football team?

She didn't practice enough

They met on Thursdays

She kept running away from the ball

Substitute riddles based on phonological ambiguity

Riddle 20

What is a hedgehog's favourite snack?

Prickled onions

A pair of jeans

A saucer of milk

Riddle 21

Where does a short sighted frog go?

To buy some glasses

To the hoptician

To the swimming pool

Riddle 22

What's green and goes camping?

A frog on holiday

A Brussels scout

A palm tree

Riddle 23

What did one pencil say to the other pencil?

I've got to write

I've got a new teddy

I've got a headache

Substitute riddles based on morphological ambiguity

Riddle 24

What do you call a sleeping child?

An energetic person

A tired toddler

A kid napper/kidnapper

Riddle 25

What kind of dog always has a high temperature?

A hot dog/hotdog

A dog in the sun

A noisy dog

Riddle 26

Where do footballers go dancing?

At a disco

At a foot ball/football

At the supermarket

Riddle 27

What sort of ball doesn't bounce

A snow ball/snowball

A ball that has gone flat

A striped ball

Substitute riddles based on syntactic ambiguity

Riddle 28

Why was the gnome told off by his mother?

He was very naughty

He was goblin/gobbling food

He was too tall

Riddle 29

What happens to frogs when they break down

They eat a sandwich

They phone for help

The get toad/towed away

Riddle 30

Why did the coffee taste like mud?

Because it was happy

Because it was ground this morning

Because it was brown and sticky

Riddle 31

What happens if you take away a tortoise's food?

You make him fast

You make him sing

You make him hungry

Substitute riddles based on idiomatic ambiguity

Riddle 32

Why did the comedian tell jokes to eggs?

He thought they'd enjoy them

He wanted to crack them up

He had to go to bed

Riddle 33

What happens to a witch when she loses her temper?

She flies off the handle

She goes to the supermarket

She gets really cross

Riddle 34

Why is there no point playing jokes on snakes?

They live in the desert

You can't pull their legs

They don't like jokes

Riddle 35

What does a caterpillar do on new year's day?

Find a new cabbage to eat

Buy a new hat

Turn over a new leaf

Appendix 7: Transcriptions of participants' explanations for punchline choices

All transcribed explanations are for original punchline choices other than those annotated with asterisks. Those annotated with asterisks denote:

* an explanation for a plausible punchline selection

** an explanation for an irrelevant punchline selection

Participant 1

Riddle 1*

'Because we- um it was because m-m-maybe ummm I can't I don't know.'

Riddle 2*

'Because maybe um was it six six was a was a bit scared of seven cos he was a lot bigger and maybe um maybe maybe that um he he's a bit scared of him because maybe he had a bit of a brighter colour than him.'

'And anything else?'

'No.'

Riddle 3

'Because if if you go to the ball and you didn't have anyone to go with you can't dance can you so I chose that one and when um I'm not some and one thing more and maybe if you go to the ball and y-you and you haven't got every every and you haven't got anyone to dance with that you might be a bit embarrassed too.'

'You might, you might, anything else?'

'No.'

Riddle 4*

'Because babies sometimes get a bit they don't really like like being really really good at stuff so maybe they like to kick their legs and they can kick the ball.' (Shrugs and shakes head).

Riddle 5*

'Well maybe because when you have a high temperature you can feel your hyper temperature and you can feel a bit sick?'

'Anything else?'

'No.'

Riddle 6*

'Well it's because sometimes when you can stamp your feet you you can get you can be really really angry and you can stamp your feet really loud and that is then that is why.' (Shrugs)

Riddle 7*

'Well it's because maybe that when when when someone can shake the plate the jelly can wobble but maybe but not all foods maybe like jelly and er maybe ketchup and stuff like that.'

'And anything else?'

(Shakes head)

Riddle 8*

‘Because um it’s because wh- when when you can’t see much you have to get your glasses so cos it can be a bit blurry so you have to get your glasses and then you can see.’

‘Anything else?’

‘Mmm yeah well I think mm well what cos when you y- you cos if you didn’t wear them any if you didn’t wear glasses you could get blind.’

Riddle 9*

‘Because when they’re fresh some people like them when they’re juicy but sometimes they don’t so I think the best time is when when they’re fresh cos because when they’re fresh you can just quickly take them and then you can and then you can cook them.’

Riddle 10*

‘Because mm well I saw on an advert that it was a whale eating sea um s- s- um um like little animals in Nemo and and they there was two fishes um um Martin and some and Dory and they got eaten too because they were fish.’

Riddle 11

‘Mm I’m not sure.’

Riddle 12

‘Because um well cos sometimes when when you’ve got when when you’ve got when when when your teacher says something is tasty you can get a bit hungry and maybe you couldn’t maybe you can’t see if there really is a piece of cake in there so you could just eat it he could just eat his homework.’

Riddle 13

‘Because sometimes when there’s too much /tʃi:təz/ you don’t you can’t win and you can stop you can try and stop them but I don’t think you you I don’t think they will.’

‘And anything else?’

‘Um yeah one more thing because maybe if you have a have a /tʃi:tə/ in your family sometimes they can win all the time because they’ve cheated and and there’s one rule in cards that you they you ca- if you cheat you always win.’

Riddle 14*

‘Because when when you annoy them you can get really really angry and sometimes you can like wobble or you can be really really really like grrr and sometimes if you’re really really really angry you you can sometimes scream.’

‘And anything else?’

‘Mm. Yeah sometimes that when um when you’re angry um sometimes other people can get angry so you can as well if they make you angry.’

Riddle 15*

‘Because maybe if you cos mouses do like cheese if you hunt the cheese sometimes you can find it but maybe someone else has eaten it but sometimes you can find it and you can quickly gobble it up.’

Participant 2

Riddle 1

‘Because they have screws.’

‘And anything else?’

(Shakes head)

Riddle 2*

‘Because seven’s got a longer bit.’

‘And anything else?’

(shakes head)

Riddle 3

‘Because he he’s a skeleton so he doesn’t have any skin.’

‘And anything else?’

(Shakes head)

Riddle 4

‘Because babies do dribble a bit (clears throat).’

‘And what does that mean?’

‘They dribble from their mouth - water comes out of it.’

‘And anything else?’

(Shakes head)

‘Oh it’s stopped recording, oh no, no.’

Riddle 5

‘Because you have to peel bananas.’

‘And anything else?’

‘No.’

Riddle 6

‘Because he has spiderwebs that can stick to stuff and like walls so he can climb up the wall.’

‘And anything else?’

(Shakes head)

Riddle 7*

‘Cos if you shake the plate it will wobble like some jelly cos it is jelly (shrugs and shakes head).’

Riddle 8*

‘Because glasses help you see.’

‘And anything else?’

(Shakes head)

Riddle 9

‘Because chickens go /tʃi:p/.’

‘And what does that mean?’

‘It means they like make a noise that make sounds like a /tʃi:p/.’

‘And anything else?’

(Shakes head)

Riddle 10

‘Because ships go on the sea and whales do eat ships.’

‘And anything else?’

(Shakes head)

Riddle 11

‘Cos they have spots on them.’

‘And anything else?’

(Shakes head)

‘No?’

(Shakes head)

Riddle 12

‘Um (clears throat) because they they look like a piece of cake.’

‘Anything else?’

(Shakes head)

Riddle 13

‘Because /tʃi:təz/ live in the wild where where um people d- play cards.’

‘And anything else?’

(Shakes head)

Riddle 14

‘Because people cro- cross the road and um they get walked on.’ (Shakes head)

Riddle 15

‘Because mouses make a squeaking noise.’

‘And anything else?’

(Shakes head)

Participant 3

Riddle 1

‘Because he had a screw loose.’

‘And anything else?’

‘Nope, no.’

Riddle 2 (riddle 28 substituted)*

‘Cos if it’s n- naughty then it’s gno- gnomey or something like that.’

Riddle 3 (riddle 25 substituted)

‘Because hotdogs as you eat hot dogs and stuff.’

‘And any other reason?’

‘No (laughs).’

Riddle 4

‘Because dribbling is basically babies’ thing and dribble in the ball as in football.’

Riddle 5

‘Because peels a banana and stuff and peeling well so that’s it.’

Riddle 6

‘Cos Spiderman flies up goes up the walls.’

‘And anything else?’

‘And he was really angry so basically yeah (laughs).’

Riddle 7*

‘Was really wobbly and stuff. I have no idea why I chose that bit (laughs). I was just basically going for a random guess.’

Riddle 8

‘No idea (laughs).’

Riddle 9

‘Because /tʃi:p tʃi:p//tʃi:p/ (imitates sound) is where c- chickens go and /tʃi:p/as in money as just like how you know price.’

Riddle 10

‘Cos they eat ships and they like fish.’

‘Anything else?’

‘No.’

Riddle 11

‘Cos leopards have spots.’

‘And –‘

‘That’s basically the only reason and spotting someth- like spotting something and stuff.’

‘And what does spotting something –‘

‘Just’

‘Mean?’

‘Just looking at finding something.’

Riddle 12**

‘Not a clue’.

Riddle 13 (riddle 16 substituted)

‘Cos bright sometimes is really like the sun bright and there’s something like bright pupils, they’re really h- good pupils and stuff that’s basically it.’

Riddle 14

‘Because crossroads is like going another way on a road and crossroads is like really angry roads.’

Riddle 15*

‘Cos mice really like cheese and they like hunting stuff. Well they’re actually hunted by stuff (laughs).’

Participant 4

Riddle 1

No multiple choice made and no explanation given.

Riddle 2*

‘Because six should be scared of seven because it’s bigger.’

‘*And anything else?*’

‘No.’

Riddle 3**

‘Because he’s got no skin.’

‘*And anything else?*’

(Shakes head).

Riddle 4*

‘Because babies like kicking things.’

‘*And anything else?*’

‘No.’

‘*No?*’

(Shakes head)

Riddle 5

‘Because if you peel a ban- banana a bruise might be on it.’

‘*And anything else?*’

(Shakes head).

Riddle 6

‘Because um there might be baddies on the roof. Done.’

‘*Done?*’

(Nods)

Riddle 7

‘Because jelly sometimes watch some things and they shake. Done.’

‘*Anything else?*’

(Shakes head)

Riddle 8*

‘Because you can’t really see without glasses.’

‘*And anything else?*’

‘No.’

Riddle 9*

‘Because um because um I couldn’t hear that again?’

(recorder switched off and riddle and punchlines reread)

‘Because when when you eat chicken when they’re not fresh they’re not very nice.’

‘*And anything else?*’

‘No.’

Riddle 10**

‘Because it it make them laugh. Done. Done.’
‘Done? Okay.’

Riddle 11

‘Because if if if really I don’t know now.’

Riddle 12 (riddle 32 substituted)

‘Because um if it’s um eggs laugh they most fall over and crack.’
‘Anything else?’
‘No.’

Riddle 13*

‘Because they might eat the cards. Done. Done.’

Riddle 14*

‘Because um when you drive over them they it’s they annoying. Done.
Done.’

Riddle 15 (riddle 22 substituted)**

‘Because um a plant can’t move and it would be a funny joke then.’

Participant 5

Riddle 1

‘Because robots have screws in them cos they’re all metal so so if it if it had um a different like a screw fell out it it would make him go crazy.’

Riddle 2

‘Because if it /et/ nine it would make six scarer of the seven.’

‘And anything else?’

(Shakes head)

Riddle 3

‘Because um if he if you went and he had nobody to go with um it’s a joke because like he had no body to go with though it was only his legs that were actually going.’

‘And anything else?’

‘No.’

Riddle 4**

‘Because if they liked music they would rather like they would probably listen to music while whilst they were doing um whatever it was.’

Riddle 5

‘Because if you peel a banana um you can eat it but wouldn’t it with like no with a skin on it you can’t eat it so if he wasn’t um if you peeled it it wouldn’t feel well.’

‘Anything else?’

‘No.’

Riddle 6*

‘Because if he was stamping his feet it would show that he was angry cos um normal people do that as well.’

‘And anything else?’

‘No.’

Riddle 7

‘Because um if a if a like the milk shook it would make the jelly shake if it if it was on the same plate as something or the same table.’

‘And anything else?’

‘No.’

Riddle 8**

‘Probably because like if you couldn’t see the circus then he wouldn’t be able to like it wouldn’t be that much fun but you can hear it um like so well.’

‘And anything else?’

‘No.’

Riddle 9

‘Cos if cos if a chicken was um like a baby it would /tʃi:p/ and like in a shop if like if you went to buy it like say if it was like forty four pound something if it went down cheaper it would be like thirty nine pound.’

Riddle 10

‘Because if like if you ate fish and chips it it would be normal but i- like because like it’s in the water it would eat ships cos war- cos ships um sail on water.’

Riddle 11

‘Because um th- th- they’re spotted and if th- and i- and they have spots on them so if like it was spotted it would make it would make it a joke.’

‘And how would it make it a joke?’

‘Because um the cos like if if you got spotted it would good for it would fit into a joke because it it had got like it it had got spots on it.’

‘And anything else?’

‘No.’

Riddle 12**

‘Because instead of his mum watching him doing his homework before she was out of the bath um he would probably eat his homework.’

‘And anything else?’

‘No.’

Riddle 13

‘Because there was an animal called a /tʃi:tə/ and if you like cheat at a game you’re called a /tʃi:tə/.’

Riddle 14

‘Because if like they get angry cos if like they want you to go over a certain way and you go the other way they get angrier and angrier.’

‘And anything else?’

‘No.’

Riddle 15

‘Because mouses squeak and if like it was called Hide and Squeak they would probably squeak in the game.’ (Shrugs)

Participant 6

Riddle 1

‘Don’t know.’

Riddle 2*

‘Don’t know.’

Riddle 3*

‘Cos it was too late.’

‘And anything else?’

(Shakes head)

Riddle 4*

‘Don’t know why.’

Riddle 5

(Long pause)

‘Do you want me to read it again?’

(nods)

‘Yeah?’

(nods)

‘Um “How did the banana know he was ill?” and you chose “He wasn’t peeling well”.’

‘Funny.’

‘And can you explain why?’

(Shakes head)

Riddle 6*

‘Don’t know.’

Riddle 7

‘Cos it’s wobbly.’

‘And anything else?’

‘No.’

Riddle 8*

‘Cos it was sunny.’

‘And anything else?’

‘No.’

Riddle 9**

‘Don’t know.’

Riddle 10*

‘Cos the sea creatures.’

‘And anything else?’

‘No.’

Riddle 11

‘Cos they’re spotty.’

‘And what does that mean, can you explain what that means?’

(Shakes head)

‘Anything else?’

‘No.’

Riddle 12**

‘Don’t know.’

Riddle 13

‘Cos they might sneak and get them.’

‘And anything else?’

‘No.’

Riddle 14*

‘Cos they get cross.’

‘And anything else?’

‘No.’

Riddle 15*

‘Cos they like cheese.’

‘And anything else?’

‘No.’

Participant 7

Riddle 1*

‘Because he because he liked liked it I can’t remember what because he was um he was in a mood and he didn’t want to g- go he wanted to go to something in a mood and to go somewhere in a house or something.’

‘And anything else?’

(Shakes head)

Riddle 2*

‘Because he he can tell he can be mean at sometimes and six can cry.’

‘And anything else?’

‘No.’

Riddle 3*

‘Cos he he was sleepy and it was night time.’

‘And anything else?’

‘No.’

Riddle 4 (riddle 26 substituted)

‘Cos they dance like (mimes wild dancing) (laughs)’

(Laughs) *‘And anything else?’*

‘No.’

Riddle 5*

‘Cos he had, he was cold and he was a little bit scared. Not anything else.’

Riddle 6

‘Because he goes up walls, he climbs.’

‘And anything else?’

‘No.’

Riddle 7*

‘Because he wanna shake people shaking the plate make the jelly wobble.’

‘And anything else?’

(Shakes head)

Riddle 8*

‘Because he he if he can’t see he could put his glasses on.’

‘And –‘

‘No.’

Riddle 9*

‘Because it was hot it’s nice and cool and fresh and nice air.’

Riddle 10*

‘Because they ea- because he can they can eat sea creatures cos they have big muscles and mouth.’

‘And anything else?’

‘No.’

Riddle 11

‘Because they always they they get spotted because they r- run fast and er the ones goes hit him got him.’

‘And what does it mean they get spotted?’

‘Because they got they got the same plants and they got s- some some of the time s’ got the same colour as plants and sometimes when they run they hit something and it was actually a leopard and the leopard gets caught by somebody and then it goes.’

Riddle 12**

‘Because he the the man likes singing in the bath. Nothing else.’

Riddle 13

‘Because they always cheat and they don’t they lie.’

‘And anything else?’

(Shakes head)

Riddle 14*

‘Because they always they give them annoying.’

‘And -‘

‘Nothing else.’

Riddle 15*

‘He he likes (?) cheese.’

‘And -‘

‘No other, no.’

Participant 8

Riddle 1

‘Uh cos um b- robots are made out of screws.’

‘And anything else?’

‘Nuts and bolts.’

‘And anything else?’

‘No.’

Riddle 2

‘Well it’s cos they’re both odd numbers.’

‘And anything else?’

(Shakes head)

Riddle 3

‘It’s because a skeleton doesn’t have any body and he doesn’t have anybody to go with either (laughs).’

‘And what does that mean he doesn’t have anybody to go with either?’

‘Didn’t have any bodies, any lungs, leg, ribcage but there’s doesn’t have a head.’

Riddle 4

‘Well it’s because babies always dribble all the time.’

‘What does that mean?’

‘Dribble means they spit’.

‘And is there anything else?’

‘No.’

Riddle 5

‘Well it’s cos bananas get peeled and like they don’t feel well.’

Riddle 6

‘Well it’s going to be Spiderman and he goes up walls and hides in places.’

‘And anything else?’

‘No.’

Riddle 7

‘Because the milk is another food and the milk was shaking too.’

Riddle 8

No multiple choice made and no explanation given.

Riddle 9

‘Acos chickens are begin with a ‘ch’ and /tʃi:p/ begins with a ‘ch’.’

Riddle 10**

‘Well because lots of people in Wales ha- wear earrings.’

‘And –’

‘No.’

Riddle 11

‘Cos leopards are spotty. ‘

‘And - ‘

‘And spotted (makes indeterminate sounds and shakes head)’

Riddle 12

‘Because the teacher is ate the homework and you would be very unusual for teachers to say “Eat your homework” or “It’s a piece of cake”.’

‘Anything else?’

‘No.’

Riddle 13

‘Well cos it’s in /tʃi:təz/ and /tʃi:təz/ are the run the um the animal and /tʃi:təz/ at cheating games.’

Riddle 14

‘Because roads wouldn’t like crossroads because because basically crossroads are the opposite of roads.’

‘And anything else?’

(makes indeterminate sounds and shakes head).

Riddle 15*

‘Because mouses love cheese.’

‘Anything else?’

‘No.’

Participant 9

Riddle 1*

‘Because like if you um have a s- like I have if I have like a screwed brain something not in my brain I would like forgot things and I would act all crazy because someone might of told you something and then that memory would have gone away like robots have memories as well but just like plastic ones.’

‘That’s right and anything else?’

‘Um no not really.’

Riddle 2*

‘Because sometimes I’m afraid of bigger n- um bigger num- well bigger people than me because it’s kind of hard to talk to them cos they might have other friends that are quite mean to me and not mean to them so it’s a bit hard for me and stuff and it’ll be hard for um six as well because seven is a higher number and then it will be /ett/ nine ten.’ (Shrugs)

Riddle 3

‘Because he might be a bit (laughs) afraid because there’ll be other people that have like skin and a skeleton is just like rah-rah-rah-rah (mimes flopping around) and no-one wants to dance to him not even a girl and that’s really why.’

‘And anything else?’

‘Well h- he might not be able to talk and it’ll just be like wah-yeah-yeah-wih-wih that’s why as well.’

Riddle 4 (riddle 16 substituted)

‘Because um some people they’re just really really nice and then some people some adults eyes they can just feel like they’re really into her feel a bit bright um yep that’s all.’

Riddle 5

‘Because sometimes you can be peel a banana well so it just feels really it because my friend once had a banana and we couldn’t peel it and I think that’s why because it was all sloppy and slimey and it was just going all mushy so you can’t peel it much but if it’s hard then you can just go whoop (mimes peeling a banana) like that.’

Riddle 6**

‘Because sometimes in movies ghosts it there’s a little song and it goes (sings) Spiderman and he just goes up doing lots of things when it does that yeah that’s why.’

Riddle 7*

‘Because sometimes if you move a plate it all goes wobbly like my friend once had jelly and she moved the plate and it went ur-ur-ur and it fell on the floor (laughs).’

‘And (laughs) anything else?’

‘No.’

Riddle 8*

‘Because sometimes glasses they’re just a bit all brown you can’t really see like when you put covers on binoculars you might think they’re it and you can’t really see it wer-er-er-a (laughs).’

‘And anything else?’

(laughs and shakes head).

Riddle 9

‘Because sometimes when it’s all at /tʃi:p/ it’s just really nice because everybody will be there but well I think it is nice to be cheaper but and because um you don’t you don’t really have to pay more money.’

‘And anything else?’

‘No.’

Riddle 10

‘Because fish live in the sea and fish sometimes just go out and find chips on there so he likes eating fish and chips really.’

Riddle 11

‘Because he has spots on him and so they can see your spot so it’s kind of the answer it’s like spotted so they might thi- so the adults might think um it’s a spot and he’s spotted something so it’s kind of out of where-ere-ere-ere.’

‘And what does it mean when he’s spotted something?’

‘It means like you’ve found something.’

Riddle 12

‘Because sometimes um um it can be like um it there can be like things coming out of in a home might be he put in popped in and then sometimes your eyes can go one and you can think it’s a piece of cake.’

‘And anything else?’

(Shakes head).

Riddle 13

‘Because sometimes they just they’re really fast and they just cheat that’s why they’re called /tʃi:təz/.’

‘And what does it mean when they cheat?’

‘It means they look at all of the cards and they pick one up really quickly when they turn around.’

Riddle 14**

‘Oh can you just read me that one again?’

(riddle and punchlines re-read)

‘Because sometimes it just really annoys the people because it goes (makes yelping noises) all the time and . . . ‘

‘And –‘

‘Nope.’

Riddle 15 (riddle 21 substituted)

‘Cos they like to hop yeah (laughs).’

‘And anything else?’

‘Um because it’s a saying called a hoptician.’

‘And why is it called a hoptician do you think?’

‘Because a a optician is a hoptician of course but they just work out if you’re hopping enough.’

Participant 10

Riddle 1

‘Um because robots have screws and he wouldn’t be very happy if one of them was loose.

‘And anything else?’

‘No.’

Riddle 2*

‘Because seven is a bigger number than six.’

‘And anything else?’

‘Nope.’

Riddle 3 (riddle 25 substituted)

‘Ummm I don’t know.’

Riddle 4

‘Because um when they’re crying they like dribble down their face.’

‘And anything else?’

‘No.’

Riddle 5

‘Er I don’t know.’

Riddle 6

‘Don’t know again.’

Riddle 7

‘Um (Shakes head) (Laughs).’

Riddle 8*

‘Because if if you need glasses then you then you would have to put them on so you probably could.’

‘And anything else?’

‘No.’

Riddle 9

‘I don’t know (laughs).’

Riddle 10

‘Cos whales are bigger than ships and and don’t know (laughs).’

Riddle 11

‘ecause leopards are spotty and it attracts people.’

‘And what happens when they attract people?’

‘Um (shrugs).

Riddle 12

‘Um because sometimes people say it’s a piece of cake when something’s easy.’

‘And anything else?’

‘And he thought it was actually cake.’

Riddle 13

‘Because a /*fɪ:tə*/ is a type of animal and you can be a /*fɪ:tə*/.’

‘*And what does what do you mean when you can be a /fɪ:tə/?*’

‘Um (shrugs)’.

Riddle 14

‘I don’t know.’

Riddle 15

‘I don’t know.’

Participant 11

Riddle 1

‘Because um once my daddy builded a robot and a screw went loose and it went bad and got all of my toys out in my bedroom.’

‘The robot did?’

(Nods)

‘And is there anything else you want to say?’

(Shakes head).

Riddle 2*

‘Um because of seven’s after six and (?) (laughs).’

‘And anything else?’

‘No.’

Riddle 3

‘Because skele- because if if they like skid across the school like and and someone did in Strictly Come Dancing his brains would just fall to pieces.’

‘And anything else?’

‘No.’

Riddle 4

‘Because my brother always dribbles on my hair.’

‘And what does he do when he dribbles?’

‘I always have to have my hair washed.’

‘And anything else?’

‘No.’

Riddle 5

‘Because once I had a banana and um my brother played a trick on me (laughs) because he already opened it and then um and then um and then my brother putted a I think it’s this voice thing that he has in him his bedroom he slided it into there (laughs) and and the banana said ‘Hello wiggy’

‘‘Arghh daddy there’s a talking banana’’ (laughs) I nearly ate that anyway.’

‘And anything else?’

‘Nnn- no.’

Riddle 6

‘Cos spiders go up the wall (laughs).’

‘And anything else?’

‘Er they spin webs on the wall too.’

Riddle 7

‘Cos jell- cos once my jelly wobbled when it saw a milkshake.’

‘Did it? And have you got anything else?’

(Shakes head).

Riddle 8*

‘Cos if you can’t see um you have to put on your glasses.’

‘And anything else?’

‘Cos my mummy has glasses.’

Riddle 9

‘I don’t know. I just chose it randomly (laughs).’

Riddle 10*

‘Because whales do eat sea um um yummy sea creatures.’

‘And anything else?’

‘Uh-um (shakes head).’

Riddle 11

‘I just chose it randomly again (laughs).’

Riddle 12

‘Because cakes are yummy.’

‘And anything else?’

‘Nope.’

Riddle 13

‘Because /tʃi:təz/ cheat.’

‘What does that mean?’

‘Because um it means say if I had snakes and ladders I already had a go I would roll it I would probably just say “Can I have the dice please for a sec?”, turn around, get it to number six and go “Yay I got a six” and then leave my counter on there.’

‘And –’

‘I do that with my mummy and daddy.’

‘And anything else?’

‘Nope.’

Riddle 14*

‘Because cars annoy them.’

‘And?’

‘Nope.’

Riddle 15*

‘Cos mice like cheese.’

‘And –’

‘And I have a pet called um mice.’

‘And anything else?’

‘Nope.’

Participant 12

Riddle 1**

‘Because robots kind of like apples (laughs).’

‘*And anything else?*’

‘Nah.’

Riddle 2*

‘Cos you know the number six it’s actually quite small because seven’s bigger than it – and that’s all (laughs).’

Riddle 3 (riddle 24 substituted)

‘Because kids have a nap.’

‘*And –*’

‘Some do in the day hmm.’

‘*And anything else?*’

‘Um no’

Riddle 4*

‘Don’t have any reason at all.’

Riddle 5

No explanation given.

Riddle 6

‘Cos Spiderman can climb up the walls cos he’s got s- er he can shoot he can spin spiderwebs in about one second hm he can.’

‘*And anything else?*’

‘No.’

Riddle 7

‘I really don’t know. I don’t know (laughs).’

Riddle 8*

‘Don’t really know right now.’

Riddle 9

‘Don’t know about the word /tʃi:təz/ so I don’t know.’

Riddle 10**

‘Cos I like the size of a whale (laughs).’

‘*And anything else?*’

‘Mmm I don’t know (laughs).’

Riddle 11

‘Don’t know. I’ve got another joke.’

Riddle 12

‘Cos cos cakes delicious. I can’t see it, I really can’t see it.’

‘And anything else?’

‘Nope (sighs).’

Riddle 13

‘Cos you’ve got /tʃi:təz/ they do cheat you know. They cheat.’

‘And anything else?’

‘No.’

Riddle 14*

‘Cos annoying’s annoying.’

‘And anything else?’

‘No (laughs).’

Riddle 15*

‘Cos mouses like cheese.’

‘And (laughs) anything else?’

‘No.’

Participant 13

Riddle 1

'I can't remember what I was saying.'

Riddle 2**

'Um I can't remember what I was going to say again.'

Riddle 3**

No explanation given.

Riddle 4**

'Cos um they're not very good at doing music (laughs).'

'And anything else?'

'No.'

Riddle 5*

'Can I have a little think about it?'

'Of course you can.'

Tape recorder turned off and riddle and punchlines re-told and reselected.

'He um what's that he had a really bad temperature.'

(Gasps) 'And anything else?'

'No (laughs).'

Riddle 6*

'Because he wa- he was actually really really angry and he was I think I got another one to do.'

'Oh, can you tell me then?'

'He because he was cross he was actually he he was cross because I think he couldn't fly any more (laughs).'

'(Gasps) And anything else?'

'No.'

Riddle 7*

'Because he was actually wobbling wobbling and wobbling and wobbling on the plate.'

'And (laughs) anything else?'

'No.'

Riddle 8*

'Because he was it it because he didn't know where his glasses were.'

'And anything else?'

'No.'

Riddle 9

Because um chickens can cluck cluck cluck or /tʃi:p tʃi:p tʃi:p/ if they want to.

And anything else for that one?

No.

Riddle 10*

‘Because um they like eating fish or like some crabs or some seaweed (laughs) I think they wouldn’t want to eat like I saw a whale on TV and it and and it and it ate some people.’

‘(Gasps) And anything else?’

‘Nope.’

Riddle 11

‘Because um they um were v-very funny and very silly.’

‘And anything –‘

‘But what did the question what did I say?’

‘Because they’re always spotted.’

‘They’re funny and they’re silly.’

‘And anything else?’

‘No.’

Riddle 12

‘Cos he was actually early b- because the teacher was really silly and te- te- tells a lie that it was his er actually his homework.’

‘(Gasps) And anything else?’

‘No.’

Riddle 13

‘Because it was because leopards or tigers or they’re animals in the jungle. They can’t play cards.’

‘And anything else?’

‘No.’

Riddle 14*

‘Because um the roads can’t talk the roads can’t do anything because the road is so silly because it’s not actually cross. It’s not actually cross, roads can’t be cross.’ (Nods head)

Riddle 15

‘Because the mouse can actually do it but he can’t actually um play.’

‘And what can the mouse actually do?’

‘Just squeak, not hide.’

‘Ok.’

Participant 14

Riddle 1**

‘Mm because mm- mm- he’d be like that cos he would mm sometimes people go there mm- happy.’

‘And anything else?’

(Shakes head).

Riddle 2 (riddle 28 substituted)**

‘Mm I don’t know.’

Riddle 3*

‘Cos at morning childrens go to bed.’

‘And anything else?’

‘No. (Shakes head).’

Riddle 4 (riddle 16 substituted)

‘Mm cos um if you look at the sun for too long then sometimes you get a bit blind.’

‘Ok and anything else?’

(Shakes head).

Riddle 5**

Multiple choice made but no explanation given.

Riddle 6

Multiple choice made but no explanation given.

Riddle 7**

Multiple choice made but no explanation given.

Riddle 8*

Cos glasses make you see better when you can’t see.

Riddle 9

Multiple choice made but no explanation given.

Riddle 10*

Multiple choice made but no explanation given

Riddle 11

Multiple choice made but no explanation given.

Riddle12**

Multiple choice made but no explanation given.

Riddle 13

Multiple choice made but no explanation given

Riddle 14*

Multiple choice made but no explanation given.

Riddle 15*

‘Cos mouses like to eat cheese.’

‘And anything else?’

(Shakes head).

Participant 15

Riddle 1

‘Um I think it’s um when they um get one out um loose um it they go a bit weird.’

‘And anything else?’

‘Um no.’

Riddle 2*

‘Um cos I think um it’s a bit scare- um he just wants to be older than the um number seven.’

‘And anything else?’

‘No thank you.’

Riddle 3

‘Um cos the skeleton couldn’t really move and um if it were um if it was still there it could go to the ball.’

‘And anything else?’

‘No thank you.’

Riddle 4*

‘Cos um when they’re moving they’re like sort of kicking their legs so um when they’re um like kicking a ball or something it’s really easy them for them to kick the ball properly.’

‘And anything else?’

‘No thank you.’

Riddle 5

‘Um so if they were real it would feel a bit um it would hurt if the um sk- um if the in the actual banana was i- er the body it would hurt cos the banana skin would be their skin and it would really hurt.’

‘And anything else?’

‘No thank you.’

Riddle 6

‘So if sometimes if you get angry you sometimes while you’re walking you stamp your feet.’

‘And anything else?’

‘Erm yes. Um while they’re walking um when they got really angry someone they could just like walk away really fast stamping.’

Riddle 7*

‘Well um if someone accidentally hit the table and it was like wood or something the table would move and it would wobble around.’

‘And anything else?’

‘Um no thank you.’

Riddle 8*

‘Well um if you weren’t seeing very well um without glasses you would need glasses.’

‘And anything else for that one?’

‘Um yes please. Well um if you d- you nee- we you would need an eye test. If it was really bad you would need to get some glasses.’

Riddle 9*

‘So if they weren’t like fresh or something the it wouldn’t taste very nice.’

‘And anything else for that one?’

‘Erm no thank you.’

Riddle 10*

‘Whales like to ea- um eat sea creatures cos like fishes and stuff cos they um they just think they taste really nice. It might be their favourite food or something. I don’t know but I’m just going to say that one. Thank you.’

Riddle 11

‘Um cos they’ve got like spots on. You could see like a bl- where their black spots.’

‘And anything else?’

‘No thank you.’

Riddle 12*

‘So if they aten it and then say that it tastes nice then they ask their friend to try it.’

‘And anything else?’

‘No thank you.’

Riddle 13*

‘Um so you can’t really get cards in jungles um the wild animals like try to chase after you or something.’

‘And anything else?’

‘No thank you.’

Riddle 14*

‘Um so if you annoy them they will like um wouldn’t really do anything but they might get angry sometimes.’

‘And anything else?’

‘No thank you.’

Riddle 15*

‘Um if they were playing a game called ‘*Hunt the Cheese*’ um they will have to f- hide the cheese then um one person um one mouse and then um the others had to try and find the cheese.’

‘And anything else?’

‘No thank you.’

Participant 16

Riddle 1**

Multiple choice made but no explanation given.

Riddle 2*

'Can you tell me?'

'Cos it's I don't know.'

Riddle 3

'Because he didn't didn't get there.'

'That's all right. And anything else?'

'No.'

Riddle 4**

'I don't know.'

Riddle 5

'Because he wasn't peeling very well.'

Riddle 6*

'No.' (shakes head)

Riddle 7*

Multiple choice made but no explanation given.

Riddle 8*

'Umm yeah.'

'Do you want to tell me?'

'Because he picked up his glasses (shrugs).'

Riddle 9

'Because they're more expensive.'

'And anything else?'

'No'.

Riddle 10*

'Because whales are underwater.'

'And anything else?'

'No.'

Riddle 11

'Because they always get spotted and get eaten''.

'And what hap-, what does it mean when they always get spotted?'

'Um don't know.'

Riddle 12

'Cos he thought he thought it was a piece of cake but it wasn't.'

'Ok and anything else?'

'No.'

Riddle 13**

‘Because they they will lose the cards.’

‘And anything else?’

‘Yeah because they don’t have any hands.’

Riddle 14*

‘Cos cars annoy the road.’

‘And anything else?’

‘Yes um birds like singing and it annoys the road.’

Riddle 15*

‘Cos mice like cheese.’

‘And anything else?’

‘Yes because mice like to eat cheese.’

Participant 17

Riddle 1

‘Because I once I seen an artist and he made one but then he put it on but it had a screw loose so it acts like that (shrugs).’

Riddle 2*

‘Because the six might be jealous about it and it wants to be older than seven.’

‘And anything else?’

(Shrugs).

Riddle 3*

‘Because maybe sometimes he’s running to the bed to his house to go to bed.’

‘And anything else?’

‘So he didn’t go to the ball and kick it a goal.’

Riddle 4**

‘Because sometimes I put music on when I was a little one and really was a ball next to me so I was moving so much I actually kicked the ball.’

‘Did you?’

‘Um hum.’

‘And have you got anything else for that one?’

‘No.’

Riddle 5*

‘Because sometimes when I get ill I know when I’m ill because I have a tired and –ture temperature like I’m ill right now.’

‘Are you? Oh dear. And anything else?’

‘No.’

Riddle 6*

‘Cos when I get angry I stamp my feet because I’m so cross I feel like I need to hurt myself by stamping them.’

‘(Gasps) And anything else?’

‘No.’

Riddle 7*

‘Because jelly is so wobbly that they all it always shakes when someone wobbles it.’

‘And anything else?’

‘No.’

Riddle 8*

‘Because (name given) can’t see very well so she put glasses put on and even (name supplied) and even (name supplied) and even (name supplied).’

‘And anything else?’

‘No.’

Riddle 9*

‘Because then really when they’re all fresh that means it’s going to be really good.’

‘And anything else?’

‘No.’

Riddle 10*

‘Because I even watched lots of films about whales and they all they eat is tasty fish that’s everything I know.’

‘And anything else?’

‘Because really all they can be able to eat is tiny good (?) because really that’s because ev- all it is it’s really good for them and they really love it.’

Riddle 11

‘Because sometimes on the TV I see lots and lots of people being spotting a one because on Deadly Sixty I see one.’

‘Oh and what does it do when people are spotting one?’

‘They try and catch it.’

‘Ok. And anything else?’

‘Because they catch it because they went to look after them and they found the mother so they got the baby and even I watched it before when someone was actually trying to peel them skin so they saved it and let maked it not be happening’.

Riddle 12

‘Because it was funny and I really liked the joke.’

‘And why did you like that one?’

‘Because it made the joke even funnier.’

‘And why do you think you found it funny?’

‘Because it the homework isn’t really a piece of cake.’

‘And anything else?’

‘Bec- and even a boy ate it. It’s really funny that a boy ate his homework.’

Riddle 13

‘Cos the all the /tʃi:təz/ are on the trees. All they do is take all the cards.’

‘Ah and anything else?’

‘Because they actually like to fiddle with stuff so they took the cards to fiddle with them.’

Riddle 14*

‘Because sometimes I annoy my brother so he annoys me back and he gets angry.’

‘And anything else?’

‘And I get angry when he starts it and I he gets angry when I start it.’

Riddle 15*

‘Because they love cheese and I love cheese too.’

‘And –‘

‘And me, my brother and my mum and my brother and my dad (laughs).’

‘And anything else for that one?’

‘Ah no.’

Participant 18

Riddle 1

‘Er yeah because he it might of been hurting him.’

‘And anything else?’

‘No.’

Riddle 2*

‘Because er you count your fingers you have even more.’

‘And anything else?’

‘No.’

Riddle 3*

‘Because if might of been at night and his friends were sleeping. It was too cold for him to go at night and bad guys might get him.’

Riddle 4*

‘Um because when um er the babies are in their baby uh chairs that they in th- they wanna get out to and they kick their legs.’

‘And anyth-‘

‘And they try to get up and they stand up and they might fall out.’

Riddle 5*

‘Because it might of been as well because he aten too much and he had a tummy ache.’

‘And anything-‘

‘And he was really hot.’

Riddle 6

‘Because he can just spin his web and go ‘blup’ and stuck and just swing over the place.’

‘And anything else?’

‘Erm yeah because he was angry and he it he just thinked he wanted him to go in jail.’

Riddle 7*

‘Because um someone was running with it and they’re going too fast. It wobbles but it kind of wobbles all the time eh and he might of dropped it and it wobbled.’

‘And anything else?’

‘Not really no’.

Riddle 8**

‘Because you can record people when you’re at a circus and cos cos you like them that much.’

‘And anything else?’

‘Yep because the show’s that good they wanna record it.’

Riddle 9

‘Because my mum eh gets it when it’s /tʃi:p/ every time eh when it’s Christmas Day because Santa likes chicken.’

‘And what does it mean when your mum gets it /tʃi:p/?’

‘Um you don’t have to spend that much money.’

‘And anything else?’

‘Yeah because me and my mum like chicken loads so we buy chicken.’

Riddle 10*

‘Because he’s underwater so how would he go to a shop and get all that stuff when he’s in the sea? He would just die if he goes out of the sea.’

Riddle 11

‘Is it because they’re not that quiet so the police can just um cop them and just put them in their jail and just they can’t escape.’

‘And anything else?’

‘Um yes so he can’t steal anything else.’

Riddle 12**

‘Because he might be annoyed of her singing in the bath and he he wants to eat his homework for once.’

‘And anything else?’

‘Yes. Because she does it every day and it annoys him and he just wants to break his book and eat it.’

Riddle 13

‘Because they might be looking at the other people’s ones and just um say stealing their one and say have the king and I have the queen and all sorts eh.’

‘And anything else?’

‘Yeah because as they keep on doing it they just win every time and everyone will get annoyed with them.’

Riddle 14

‘Cos when people are walking across the road um he you can just stamp on them and it hurts them and they get really annoyed every time people stamp on them and when the cars go by like they hit them and stuff (whistles).’

‘And anything else?’

‘Yes cos when the um eh cars go um fast it um it likes it it goes really fast and it goes really hot on him and it feels like he’s burning.’

Riddle 15*

‘Cheese of course.’

‘And can you tell me why you choose ‘*Hunt the Cheese*’?’

‘Um cos he likes cheese really much so he goes nobble nobble uh uh uh one eats it.’

‘And anything else?’

‘Yeah because he can run really fast and anyone else gets it he just fights over it.’

Participant 19

Riddle 1

‘Because robots only go silly if they have a screw loose.’

‘*And anything else?*’

‘No.’

Riddle 2*

‘Because when seven because it goes in order from one to to a h- hundred and numbers never stop so that that’s it goes six is small, seven is bigger so that’s why.’

‘*And anything else?*’

‘No.’

Riddle 3

‘Because skeletons have to have a body to do it and when if er skeletons went with no body then all what’ll happen they will know it’s a skeleton who who they would go over and just touch it and the skeleton would fall into pieces so he’ll have to have a body to go.

‘*And and anything else?*’

‘No.’

Riddle 4*

‘Because when they kick their legs they try when they kick their legs so when they kick their legs if they’re too close to the football the foot they will send the football flying bec- because they’re kicking.’

‘*And anything else?*’

‘No.’

Riddle 5

‘Because when to eat a banana we have to peel it but he wasn’t peeling properly when someone tried to peel it it was too hard to do it.’

‘*And anything else?*’

‘No.’

Riddle 6*

‘Because sometimes on spiderman movies he’s angry so he stamps his feet and then he climbs up the wall so I should have chose both shouldn’t I.’

‘*And anything else?*’

‘No.’

‘*No?*’

‘No.’

‘*No, do you want to...*’

‘Er I can’t think of anything.’

Riddle 7

‘Because if a jelly was alive and it saw some mi- a person just picked up some milk and it would wobble that’s when th- the jelly would start wobbling and it’s copying.’

‘*And anything else?*’

‘No.’

Riddle 8*

‘Because people who can’t see very well they have to have glasses just like me so then they able to see properly just like me.’

‘And anything else?’

‘No. Why do you have that little - ?’

(Tape recorder switched off and question about recording light responded to).

Riddle 9

‘Because what does /tʃi:p/ mean?’

(recorder switched off and the two meanings of /tʃi:p/ discussed)

‘Because when it’s /tʃi:p/ and the tide has to be out so I picked /tʃi:p/ and the tide out because if the tide was in and the chicken went to relax on the sand it’d get swept out.’

‘And anything else?’

‘No.’

Riddle 10**

‘Because big earrings a whale is so big a big earring would nearly touch the inside of him so when he eats it he will it will go straight down.’

‘And anything else?’

‘No.’

Riddle 11

‘Because the- they’re so fast they will see the flash bit of them so they will know they’re there so they will just pu- close the doors and put an net in front of them and the leopard won’t see the net cos it’s going too fast so and just bump into the net.’

‘And anything else?’

‘No.’

Riddle 12*

Because if if a homework f- er because the homework wouldn’t have tasted nice so but his friend was playing a joke on him so he ate his half of his writing and it tasted disgusting wouldn’t it?

‘It probably would. Anything else? For that one?’

‘Huh?’

‘Anything else?’

‘No.’

Riddle 13

/tʃi:təz/ love the forest and lots of birds and wild animals to eat. They run around the forest and thinking the cards are l- are animals so they would eat it all up.’

‘And anything else?’

‘No.’

Riddle 14**

‘Because if too many cars go over the road over the road then they go so angry at because it would get so hurt it would get so angry the road would turn into a really high the cars would go up there when it’s on the way up like that it will roll back down.’

‘Okay and anything else for that one?’

‘Er yes and the the road would go fast forward and back so when the if it goes fast forward the car will go spinning forward all the way and crash straight into the wall.’

Riddle 15*

‘Because I chose that one because er um too many cheese did I say?’

‘Hunt the cheese.’

‘Oh hunt the cheese because mouses love cheese so if they will easily be captured because if robbers put cheese there and there there and there and then put a trap there when the mouse goes eating them and steps into net eats the last bit it will feel the ma- the that the last bit of cheese will be rubber what and when they pull it the string will go down will the knot on the end of the string will go down and the net will go up with the mouse in.’

‘And anything else?’

‘Er this last one?’

‘Yes.’

‘Um let me see, yes. Because if if people want lots of mouse their pet mouse and they put so they put cheese out in their garden and turn their house into cheese their mouse will have following it and it start to eat their house.’

Participant 20

Riddle 1

‘Because they were you can actually screw them and they go out of control and when they go out of control they’re in they get really ang- not good and they try to mess up anything in your house.’

‘And anything else?’

‘No’

.

Riddle 2*

‘Because when seven because it goes in order from one to to a h- hundred and numbers never stop so that that’s it goes six is small, seven is bigger so that’s why.’

‘And anything else?’

‘No.’

Riddle 3

‘Because skeletons have only bones in their body and they’re and they’re like dead and skeletons can actually move but they only scare someone.’

‘And do you have anything else?’

‘No.’

Riddle 4*

‘Because when babies na- when babies need their nappies off they do this (kicks legs up and down) and they kick footballs and babies do like music.’

Riddle 5

‘Because when they peel bananas they eat them a little and they’ll throw them in the bin.’

‘And anything else for that one?’

‘Yes. And he and bananas actually melt in the sun.’

Riddle 6

‘Because when Spiderman’s angry he climbs on the wall he gets one hand on and er gets his webs and shooting them at the baddies.’

‘And anything else?’

‘No.’

Riddle 7

‘Because it saw the milk shake and it wobbles a little bit to try and go away from the milkshake from spilling it on him.’

‘And anything else?’

‘No.’

Riddle 8*

‘Cos when you’re blind and you can’t see a little you wear some glasses.’

‘And anything else?’

(Shakes head).

Riddle 9*

‘Because when they’re going fresh that means they’re yummiier than anything.’

‘And anything else?’

‘No.’

Riddle 10*

‘Because whales are bigger than their whales’ heads are bigger than anything than their bodies and when they’re bigger than their bodies that means they get hungry and they ate them with their hairy teeth.’

‘Wow and anything else?’

‘No.’

Riddle 11*

‘It’s because when they’re getting caught they’re really fast running and it what they think they’re like big they’re like Big Foot. That’s all.’

‘And anything else?’

‘No.’

Riddle 12**

‘Because it’s funny.’

‘And why do you think it’s funny?’

‘Because mum singing in the bath really funny.’

Riddle 13**

‘It’s because when it snows on the mountains the you can’t get onto the other side you have to zig-zag your way up. You you have your you have skis and then you you get you sk- walk and then when you get to a corner you walk again and then you walk another corner.’

Riddle 14*

‘Because when you annoy birds they get very angry.’

(Shrugs shoulders and shakes head).

Riddle 15*

‘Because mice like cheese and they eat it a lot and try to steal it like on Tom and Jerry there’s a mouse and a cat, the cat tries to get the mouse when he gets all the food out the fridge.’

‘And anything else?’

‘No.’

Participant 21

Riddle 1

‘Because um when you’re a screw loose means you’re a little bit um kind of off today or yeah off today.’

‘And anything else?’

‘And the robot um the robot had a screw loose because he wasn’t feeling very good today.’

Riddle 2 (riddle 28 substituted)**

‘Cos gnomes are um supposed to be really really small in your garden. You have like the um gno- garden gnomes and his mother was telling him off cos he was too tall.’

Riddle 3 (riddle 26 substituted)

‘Cos um it’s like a football as in when you st- when the ball goes round in your hand football and the player plays the football player plays football the sport.’

‘That’s right. Anything else?’

‘Um no.’

Riddle 4

‘Cos when you’re a baby you kind off dribble and you don’t know you go (mimes drooling) and all your saliva dribbles down and in football you dribble the ball past cones and people.’

Riddle 5 (riddle 21 substituted)

‘Cos you usually go to the optician when your eyes aren’t very good but inste- cos frogs hop it’s a hoptician’.

Riddle 6

‘Maybe not I don’t know no.’

‘Don’t know?’

‘No. I don’t understand that one.’

Riddle 7

‘Because it’s a milkshake you shake it and then the um oh whatch- um the blender and it makes like um the milk the milk shake and the jelly usually wobbles and he saw the milk shake so he wobbled.’

Riddle 8

No multiple choice made and no explanation given.

Riddle 9

‘Because partly you want to buy something that’s /tʃi:p/ in money but also chickens go /tʃi:p tʃi:p/’ (uses hands to show a motion of an opening and closing beak).’

Riddle 10

‘Cos you usually eat fish and chips but the whales eat fish and ships cos they’re so big.’

Riddle 11

‘Because um the pattern on a leopard’s body is spotted and they’re always spotted when they do crimes in the joke.’

‘And what does that mean when they’re always spotted when they do crimes?’

‘Like the policeman always see seed them doing crimes.’

Riddle 12 (riddle 33 substituted)

‘Because flying off the handle is a phrase and the witch flies on a broom and she flies (laughs) off the handle.’

‘And do you know what that phrase means?’

‘Um no but I’ve heard it before.’

Riddle 13 (riddle 18 substituted)

‘Because clowns are supposed to be funny and make you laugh and um the lion thought he tasted a bit funny a bit weird so he spat him out.’

Riddle 14

Multiple choice made but no explanation given.

Riddle 15

‘Um because the usual game you play is hide and seek but mouses do squeaking and they um said hide and squeak.’

Participant 22

Riddle 1

‘Because um I don’t really know why. It’s just I thought of it.’

Riddle 2

Multiple choice but no explanation given.

Riddle 3

‘Because skeletons have no skin to keep them warm and um nobody and he can’t keep warm without any skin.’

Riddle 4

‘Because babies don’t dribble with the ball. They dribble with their mouths. That’s it.’ (shakes head).

Riddle 5

‘Because it was meant to be feeling well because it’s a banana peeling.’ (shrugs).

Riddle 6

No multiple choice made and no explanation given

Riddle 7

‘Because um if it’s sometimes when people shake other people’s shake like the same with yawning if somebody yawns the other person yawn.’

‘That’s right.’

‘That’s it.’

‘That’s it? Nothing else?’

‘No.’

Riddle 8

‘Because a saw you can (mimes sawing) um with that he says saw so he can see.’

‘That’s right anything else?’

‘No.’

Riddle 9

‘Because chickens go /tʃi:p tʃi:p/ that’s it.’

Riddle 10

‘Because um I don’t know.’

‘That’s no problem.’

Riddle 11

‘Because they have spots all over themselves and I don’t know anything else.’

‘That’s fine.’

Riddle 12

Because piece of cake can also mean easy but the boy probably thought that it was a proper piece of cake.'

Riddle 13 (riddle 16 substituted)

'Because um because some people are bright and bright also means like bright like a light.'

'And what what else does it mean when pupils are bright then when you said some pupils are bright?'

'Um it means that um they're active and stuff like that.'

Riddle 14

'Because um crossroads they can be cross. That's why it's called crossroads. That's all.'

Riddle 15

'Because mices say squeak and also um they could play it a lot because of the cats' (shakes head).

Participant 23

Riddle 1

'I think he has I th- I get that joke because he is made of metal and he you you use screws to make stuff out of metals and if you get a screw loose it will all break so I think (shrugs).'

Riddle 2 (riddle 28 substituted)*

'I don't like um I get that joke because he um nor- why what were they really called?'

'The one you chose?'

(Nods)

'It was "He was very naughty."'

'Was it gn- bec- was it gnomes or . . . ?'

'Gnome that's right. It was "Why was the gnome told off by his mother ?" and you chose "Because he was very naughty."'

'Because gnomes are normally naughty in fairy tales so. . . (shrugs).'

Riddle 3 (riddle 24 substituted)

'I think it's the kidnapper because they some people say go go for a nap which is going to sleep sometimes and it's a boy that's a kid so kidnapper is it.'

'That's right anything else?'

'No not really.'

Riddle 4

'Because babies dribble from their mouths sometimes and I get that joke because there's a type of dribbling from footballs and baby was babies dribble from their mouths so it's like a k- like I think they're doing I think they're like the baby can dribble so much like basically the dr- the baby dribbles and f- in football you have to dribble for the ball.'

Riddle 5 (riddle 21 substituted)

'He does it because frogs like water and we go in swimming pools so it's like so that's basically what I think it means.'

Riddle 6*

'He goes up the wall because Spiderman can climb up walls and when he's very angry I think he would climb up walls because he can (shrugs).'

Riddle 7

Multiple choice made but no explanation given.

Riddle 8*

'It's probably because he was kind he can't see that well and he has to put glasses on to understand what's near him and what's clo- over further than him (shrugs).'

Riddle 9

‘Chickens can cost a lot so to eat so I think it’s better to buy them when they’re /tʃi:p/.’

‘Anything else?’

‘No.’

Riddle 10 (riddle 22 substituted)*

‘Because he is a frog and he’s really green and he’s going on holiday so (sighs) but I think that’s why it that’s a joke he’s green.’

Riddle 11

‘Because leopards are spotty and they’re supposed to be like people spot people um.’

‘And what does that mean?’

‘Basically people see people other people doing stuff.’

Riddle 12

‘Well some people say it’s a piece of cake as something like it’s really easy and I think the boy’s mm- th- thought he she meant it’s a tasted like a piece of cake.’

Riddle 13 (riddle 16 substituted)

‘Well some teachers say that you their pu- pupils are bright as they’re good work workers or they can produce a lot of work and the sun is bright and I think that’s why the joke is really because the bright also means that something’s really bright and . . .’

‘And so why did she have to wear the sunglasses?’

‘Because the pupils were bright basically.’

Riddle 14

‘I think that it’s cross roads because some people cross the roads and people get cross basically and they’re roads.’

Riddle 15

‘Because mouses squeak and s- people say it’s hide and seek but mouses squeak and they basically hide. They do really play hide and sq- seek.’

Participant 24

Riddle 1

‘Because he’s like robots get made like of screws and metal and because it like came out and then he felt a bit daft (shrugs).’

Riddle 2*

‘Because he’s like old and it could beat him up and like hurt number six (shrugs).’

Riddle 3

‘Because like no body cos he has like no body like skeletons and he has like no friends to go with.’

Riddle 4

‘Because they can dribble because like like babies dribble (points to mouth) sometimes and like dribble with the football (mimes kicking ball).’

Riddle 5

‘Cos like he wasn’t peeling like when you peel a banana and nobody cos like pulling peel him right and I’ve no idea what else.’

Riddle 6

‘He goes up the wall because like if he’s angry people like say that sometimes and like he goes up the wall like really angry and and I’m not exactly sure other why.’

Riddle 7*

‘Because someone wobbled the plate because like if you wobble um a plate the jelly wobbles and it just like it wobbles really much and I’m not exactly sure anything else.’

Riddle 8*

‘He put on his glasses so he could see better and like not um he could see better and I’m not sure what else.’

Riddle 9

‘When they’re /tʃi:p/ they’re more like less money and um sometimes a bit more untastier and not sure.’

‘Anything else?’

‘No.’

Riddle 10

‘Because he eats fish and chips cos fish is in the like sea and he can catch fish and likes fish comes with chips (shrugs and shakes head).’

Riddle 11

‘Because like leopards. What was it? Leopards?’

‘That’s right.’

‘Leopards always get spotted because they’re really fast and people can notice them when they’re like lying down and running.’

‘Anything else?’

‘No.’

Riddle 12

‘Like his homework tastes nice because like if his teacher like liked it it was like piece of cake nice like that and it’s really good so he like says it’s a piece of cake.’

Riddle 13

‘Too many /tʃi:təz/ because like when you play cards /tʃi:təz/ and the animal /tʃi:təz/ in the forest.’

Riddle 14**

‘When the birds are singing cos it can annoy roads and sometimes distract them when cars are going on them.’

Riddle 15*

‘Hunt the cheese because like a mouse looks for cheese and mouse mouses love cheese. Mice even like cheese and like hunt for cheese is like a game for like Easter and like hunt for the chocolate and eggs.’

Participant 25

Riddle 1

‘Because he’s a robot and s- he has lots of screws in him and the one’s got loose.’

‘*Anything else?*’

‘Nope.’

Riddle 2

‘Because or um seven /et/ nine and just six bu- well seven /ei- et/ and nine over there and then six by there (shrugs).’

‘*That’s alright. Anything else?*’

‘Nope.’

Riddle 3

‘Because he’s a skeleton and he might of lost his body who he he only has his head.’

‘*Anything else?*’

‘Nope.’

Riddle 4

‘Because babies dribble dribble as in like drool and dribbling the ball.’

Riddle 5

‘Because bananas peel and well he peeled. Well he wasn’t peeling very well so he thought he was ill because he wasn’t peeling well (shrugs and shakes head).’

Riddle 6

‘Cos Spiderman can climb and walls and and he’s well in a bad mood so he probably climbed the wall.’

Riddle 7

‘Because he shakes when he sees milk and it’s a shake milkshake. He might shake when he sees milk shake.’

‘*Anything else?*’

‘Nope.’

Riddle 8*

‘Not really sure. It’s hard to explain. I dunno.’

Riddle 9

‘Um cos chicken and /t/i:p/ rhyme an- and it’s cheaper.’

‘*Anything else?*’

‘Nope.’

Riddle 10**

‘Um because he’s er big he’s quite big and big earrings.’

‘*Anything else?*’

(Shakes head).

Riddle 11

‘Because they they they have spots and when they get spot spotted and s-spots.’

‘What does it mean when they get spotted?’

‘As in s-say like they robbed the bank and then they got spotted.’

Riddle 12

‘Because um it’s a piece of cake he might have ther- thought that it’s it’s tastes like a piece of cake. His homework tastes like a piece of cake.’

‘Anything else?’

‘Nope.’

Riddle 13

‘Because /tʃi:təz/ cheat maybe.’

‘And what does that mean?’

‘Well say you cheated you took a card from that side and you might of put it by there and you cheated.’

‘Anything else?’

‘Well like you cheated in a race or something like that.’

‘Yes. Anything else?’

‘No.’

Riddle 14*

‘Because if you annoy a road it gets angry maybe.’

‘Anything else?’

(Shakes head).

Riddle 15

‘Because it they squeak and you gotta hide and squeak and maybe the mice has to find the squeak.’

‘Anything else?’

‘Nope.’

Participant 26

Riddle 1

‘Because um my mum usually says um if I’m a bit um like messing around and being silly she calls me um I don’t know why but she calls me a screw.’

‘Does she?’

‘Yeah or loose um and I think it’s a screw loose because robots have got screws in.’

‘That’s right, anything else?’

‘Nah.’

Riddle 2

‘Because if it’s um six is afraid of no five is afraid of six it’s seven /eIt/ nine but it sounds like seven actually /et/ nine.’

‘And what does that mean, if seven /et/ nine?’

‘It’s like um it sounds like seven actually /et/ the number nine.’

‘Anything else?’

‘No.’

Riddle 3

‘Because um that sounds like he had nobody to come with but as it’s a joke about a skeleton um he doesn’t have any body other body.’

Riddle 4

‘Because my mum says when I was a baby I kept dribbling and my dad said because I really liked football um when I was liking football he said there’s something called dribbling and I said to my dad “Why, mum said I dribble a lot” and he says “No that’s a different kind of dribbling. When you’re a baby you dribble but in football you dribble as well”.’

‘What does it mean when you dribble when you’re a baby?’

‘Like stuff comes out your mouth.’

Riddle 5

‘Because if you’re not feeling very well you go to the doctors but as it’s a a joke to do with a banana he doesn’t peel very well.’

Riddle 6

‘Because you know spiders can crawl up on the wall um if someone’s could be angry they could um get a bit shy as well cos they don’t want to shout as loud as they can. (Shrugs shoulders and shakes head).’

Riddle 7

‘Because if he saw the milk sha- shake it actually sounds like the milkshake that you drink so er you might have jelly and milkshake so the jelly wobbled as well as the milkshake.’

‘And what does it mean when the milk shakes then?’

(Shrugs).

Riddle 8

‘Because er those kind of jobs you usually have a hammer and a saw and it sounds like he got his hammer and it um help helped him to s- see better.’

Riddle 9

‘Does it sound like um does it sound like the sound that they make cos they um go like that (makes shape of beak opening and closing with hands).’

‘Yes and anything else?’

‘No.’

Riddle 10

‘Because um childr- well children and grown-ups in America usually eat um fish and chips but whales in Wales um they kind of try and eat ships and it sounds like fish and chips.’

Riddle 11

‘Because if you’re like in a spy film and um say James Bond was on one side and I was on the other James Bond might say I spot you like I’ve spotted you and then he comes back to his base he you could say I spotted the um person on the other side and a leopard is spotty as well.’

‘That’s right and when James Bond says I spotted someone what does he mean?’

‘Like he’s seen somebody.’

Riddle 12

‘Because people usu- usually say it’s a piece of cake when it’s very very easy and the if the boy didn’t know that he might of actually thought it was a cake.’

Riddle 13 (riddle 16 substituted)

‘Because in light for some people they can’t really see because it it’s too light and um people could say my pupils are um bright saying they’re r-r- really clever.’

Riddle 14

‘Because it sounds like two roads are having an argument and um they might be cross and two crossroads means it’s one one sides one side’s that cars can go one way and the other side the cars can go the other way.’

Riddle 15

‘Because um mou- mices squeak and it sounds like hide and seek the game.’

Participant 27

Riddle 1

‘Because the screw is th- part of his b- um like a screw he has to have the screw in and if he like if he didn’t have that screw in he that might have made him like be like unhappy cos that screw might have made him happy and then the screws come out.’

‘And anything else?’

(Shakes head)

Riddle 2*

‘Because seven seven it goes literally one two three four five six and then it goes seven and like seven might be older and it might be like meaner or something’.

‘Anything else?’

(Shakes head)

Riddle 3

‘Because because first of all um he doesn’t have a body and he might not have caught like no one might not of danced like wanted to dance with him.’

‘Anything else?’

‘No.’

Riddle 4

‘Because as a baby like you do dribble sometimes like like like when you’ve got your dummy out or something you dribble like (points to mouth) and that football dribble is as like when you dribble against a player or something (mimes kicking ball with feet).’

Riddle 5

‘Because like he he’s peeled. He might not of been like peeling as well as people when they eat and then when they might be “Oh he’s not pee- I can’t open this”.’

‘That’s right, anything else?’

‘Um no.’

Riddle 6

‘Because Spiderman is like he might be going to find spidercob like nets up cos you wouldn’t like he there’s normally if you climb a wall there’s normally some like spiderwebs and everything and he’s a good climber and like that’s why he’s called Spiderman.’

‘Anything else?’

‘Um cos he and because like he if he goes up there he might I forgot what I was gonna I think like I was going to say like he if he might find like like he might be a going up there because to find some spiderwebs as well because they might be his like friends or something because because spider man so he might be a spider with with all the others and they might be spiders.’

Riddle 7*

'Because if someone shook the plate jelly is if someone shakes it it will wobble and like if midnight it wouldn't wobble and if the milk wobbles it doesn't have to mean the it will.' (Nods)

Riddle 8*

'Because like if like normal people like if they can't see properly they put on glasses as well to make them look properly (shrugs and shakes head).'

Riddle 9

'Because like say chickens are quite expensive but if they were going /tʃi:p/ they wouldn't be as expensive and people would because they're very nice people would like like go for them for Christmas to if they were the right date on it they would save them for Christmas.'

'Anything else?'

'And like because people like them they would go if they're /tʃi:p/ because because no-one really goes for them if they're really expensive but they w- are nice but if they're /tʃi:p/ they would.'

Riddle 10*

'Because if it's in the sea the seal and if it wouldn't come out to get fish and chips from the fish shop and it wouldn't really eat earrings.'

'Anything else?'

'And and because it's in the um you it because it's in the water they might've like go for crabs and all that so . . .'

Riddle 11

'Because it they're spotty and plus if they like they're not that camouflaged like on a (?) like with all the walls and everything so I th- um because they're spotty they would see all their spots and and the like RSPC or something would come ok.'

'Anything else?'

'No.'

Riddle 12

'Because if she might meant it's easy like if you say it's a piece of cake it doesn't mean it's a real piece of cake but it means like it's it's a it's easy it's pips ea- like I would say "Oh that's a piece of cake" (laughs) but like you wouldn't say you wouldn't eat it if I said "It's a piece of cake".'

'Anything else?'

'No.'

Riddle 13

'Because in the forest there are /tʃi:təz/ and (laughs) if you played against a /tʃi:təz/ it could mean they are /tʃi:təz/ big /tʃi:təz/ and the /tʃi:tə/ could tell other /tʃi:təz/ how to cheat so yeah I think this cheating.'

'And what are the /tʃi:təz/ in the forest? What are they?'

'What are they?'

'Yeah.'

'Oh /tʃi:təz/ in the forest are like er fast animal like a lion or tiger or something.'

Riddle 14

‘Because like crossroads it would be a crossing like crossroads and it would have to wait and wait until they went and got a like dr- a car droven on.’

‘Anything else?’

‘No.’

Riddle 15

‘Because the mouse would like hide and like the cat is it or is there not a cat?’

‘The question was “What’s a mouse’s favourite game? Hide and squeak”.’

‘Probably hide and seek be- squeak because it’s hide and seek we play but they would like to probably play hide and um squeak so if they like squeak they would.’

Participant 28

Riddle 1

No multiple choice made and no explanation given.

Riddle 2

'Because um seven and after that is /*ett*/ nine and they said that um seven /*ett*/ nine.'

'And what does that mean seven /ett/ nine?'

'Um um I don't know (laughs).'

Riddle 3

'Because he had no body and um there's nobody to go with because he's so scary (laughs).'

Riddle 4

'Because babies dribble.'

'And what does that mean?'

'Um dribble (laughs) down (points to mouth and makes downward action) you know (laughs) and um you can dribble a football.'

Riddle 5

'Because you can peel banana and um you can tell (laughs) if they're not ripe.'

'Anything else?'

'Um no (laughs).'

Riddle 6

'Cos spiders can climb and he climbs walls sometimes in the video clips.'

'Anything else?'

'Um no.'

Riddle 7

'Um there's a um milkshake a drink and um um milk shaking (laughs).'

Riddle 8

'Because um oh I can't um I forgot the riddle again.'

'Do you want me to tell you, do you want me to read the joke and the answer you chose? "How was the blind carpenter able to see? He picked up his hammer and saw".'

'Um because he saw the hammer and he you can saw saw (makes sawing action) stuff with the saw.'

Riddle 9

‘Cos chickens /tʃi:p/ and sometimes they’re /tʃi:p/ cos they’re small.’

‘Because they’re what sorry?’

‘Small.’

‘Small. Anything else?’

‘Um no.’

‘And what does because they’re /tʃi:p/ mean?’

‘Um there’s not much money on them.’

Riddle 10

‘Because ships sail on the water and we may eat them instead of chips (mimes eating something) and fish swim in the water.’

Riddle 11

‘Cos they’re spotty and um you can spot er and um you can spot them in the long grass.’

‘What does that mean, you can spot them in the long grass?’

‘See them.’

Riddle 12

No multiple choice made and no explanation given.

Riddle 13 (riddle 19 substituted)

‘In the story um Cinderella went to a ball where they dance and when the football team they have a ball so she could of been running away from the ball.’

Riddle 14

No multiple choice made and no explanation given.

Riddle 15

‘Because they squeak and they normally hide in the daytime so that people can’t see them.’

‘Anything else?’

‘No.’

Participant 29

Riddle 1

‘Because some- sometimes the um bolt what’s coming out of robots and (laughs) it’s hard to get them in.’

‘That’s right. Anything else?’

‘No.’

Riddle 2*

‘Because seven’s in the next age above six.’

‘That’s right. Anything else?’

‘Um th- that that six has got a curly head top and seven seven’s got a straight top.’

Riddle 3 (riddle 25 substituted)

‘Because it’s hot and they’re dogs an- and they’re made it up of hot and then then they’ve made it they’re they’re made up of dogs hot dog a dog that’s being being roasted.’

‘Being what sorry?’

‘Being being roasted because it’s a hot . . .’

‘Anything else?’

‘No I’m fine.’

Riddle 4

‘Because um babies dribble.’

‘What does that mean?’

‘It means their saliva comes out their mouths (laughs).’

‘That’s right anything else?’

‘N-no.’

Riddle 5

‘Because bananas can peel you can peel bananas and um that’s it.’

Riddle 6

‘Because Spiderman goes goes up on walls and um sometimes he does that quite a lot.’

‘Anything else?’

‘No.’

Riddle 7*

‘Because jelly shakes.’

‘That’s right. Anything else?’

‘No.’

Riddle 8*

‘Because because people can’t see without see without glasses so so it might (?) to people.’

Riddle 9*

‘Because some sometimes you get fresh chickens.’

‘*Anything else?*’

‘No.’

Riddle 10

‘Because sometimes you can eat fish and chips and it’s the best food ever in the world.’

‘*And anything else?*’

‘No.’

Riddle 11

‘Because there’s sometimes sometimes frogs are spotted. No and nothing else.’

Riddle 12**

‘Because ladies sing in the bath and my er ah nothing else. That’s all.’

Riddle 13

‘Because sometimes sometimes /*fɪ:təz*/ run fast and then that’s all.’

Riddle 14

‘Because you can cross roads. That’s all.’

Riddle 15

‘Because sometimes mouses might m- mice squeak.’

‘*Anything else?*’

‘No.’

Participant 30

Riddle 1

‘Because a robot sometimes if they have a screw loose they act all funny.’

‘Anything else?’

‘Not really.’

Riddle 2 (riddle 28 substituted)

‘Um because um don’t (shrugs).’

Riddle 3 (riddle 24 substituted)

‘Um because they like kidnappers s- um um cos um um (shrugs).’

‘Don’t worry.’

Riddle 4

‘Cos babies dribble with their mouth and you can dribble in football.’

Riddle 5

‘Because you c- you don’t feel well and you can peel a banana.’

Riddle 6

‘Cos Spiderman normally climbs up walls.’

‘Anything else?’

(Shakes head).

Riddle 7

‘Cos milk shakes sounds like it’s shaking and when he wobbles (shrugs).’

Riddle 8**

‘Don’t know (laughs).’

Riddle 9

‘Because um chickens ch- like /tʃi:p/ and it means money. It’s really /tʃi:p/.’

Riddle 10

‘Because whales are big like ships and don’t know.’

Riddle 11

‘Because lions are spotted and you can spot them easily.’

‘What does that mean? You can spot them easily?’

‘You can find them easily cos they’re like spotted means you find something easy.’

Riddle 12

‘Because piece because piece of cake is like a cake and you can eat cake and she said it was like a piece of cake and sometimes teachers say that cos it’s really good.’

Riddle 13

‘Cos /tʃi:təz/ can they’re like the name they cheat and if you cos you can cheat by saying pull a card out like a really high card and cheat.’

‘Anything else?’

(Shakes head).

Riddle 14

‘Cos cross you’re normally really angry and like crossroads you sometimes get them and it means like they’re really angry roads.’

Riddle 15

‘Because um mouses squeak and hide and seek squeak sound likes hide and seek.’

Participant 31

Riddle 1

‘Um cos he would get a bit broken um so . . .’

‘And why would he get broken?’

‘Um cos some of his pre- parts might’ve fallen out.’

‘Anything else?’

‘Um no.’

Riddle 2 (riddle 28 substituted)

‘Um um er I dunno.’

Riddle 3

‘Because he wouldn’t’ve been able to dance with anyone because he would be a bit too scary.’

‘Anything else?’

‘No.’

Riddle 4

‘Um cos babies um like to dribble and when you can dribble a football.’

‘Okay and what does it mean when babies like to dribble?’

‘Um it means spit comes out of their mouth.’

Riddle 5

‘Um because um cos no-one could peel him and i- if you don’t feel well you normally go to the doctors so I suppose it’d be that you he was g- didn’t feel well but (shrugs and shakes head).’

‘Is that it?’

‘Yeah.’

Riddle 6

‘Cos he’s got um um webs that he can climb up the wall so he normally climbs up the wall on s- on there and that’s all.’

Riddle 7

‘Um because um milkshake is something you drink and someone must’ve had it and but he shakes as well (laughs).’

Riddle 8

‘Mm I don’t know (laughs).’

Riddle 9

‘Um because you would want to buy a chicken when they’re /tʃi:p/ and look chickens /tʃi:p/ as well.’

‘Why would you want to buy a chicken when they’re /tʃi:p/?’

‘So you don’t have to use as much money.’

Riddle 10

‘Cos um people eat fish and fish and chips but there aren’t chips in the sea there are ships so they would probably eat ships instead of chips.’

Riddle 11

‘Because they’ve got spots and people can spot things um.’

‘What does that mean people can spot things?’

‘It means they can see them when they’re running away.’

Riddle 12

‘Um because when someone’s work is bad the s- teacher sometimes said it’s a piece of cake and he thought she actually meant a piece of cake that you can eat.’

Riddle 13

‘Because there were /tʃi:təz/ in the forest and they’re really fast so they’re so um they would probably cheat if they could play games.’

Riddle 14

‘Um because um the roads um when they go cross they’re called cross roads so um an’ when you’re cross you’re get angry.’

Riddle 15

‘Cos mouses squeak and um they have to hide in hide and seek so . . .’

Participant 32

Riddle 1

‘Because um robots have lots of screws and it just sounds funny.’

‘Anything else?’

‘No.’

Riddle 2*

‘Because it’s a bigger number and it would probably be afraid of the joke.’

‘Great. Anything else?’

‘No.’

Riddle 3

‘Because um I’ve heard that joke before.’

(Riddle 25 substituted)

‘Because um you can eat a hotdog and that’s why it’s funny cos it’s actually like hotdog.’

‘Anything else?’

‘No.’

Riddle 4

‘Because babies can dribble and that’s a football move.’

‘That’s right. What does it mean that babies can dribble?’

‘When they’re dribbling (points to mouth).’

‘That’s right.’

Riddle 5 (riddle 22 substituted)

‘Because I think it might be a food and it sounds funny.’

‘Do you know why it sounds funny?’

‘No’.

Riddle 6

‘Because I didn’t really know the answer so I just guessed and that sounds right.’

Riddle 7*

‘Because jelly wobbles and that just sounds funny.’ (Shrugs).

Riddle 8

‘Because it sounds like the same joke. It sounds like I don’t know.’

(Shrugs).

Riddle 9

‘Well it doesn’t really sound like a joke cos that’s what I would do buy a chicken /tʃi:p/.’

‘And what does it mean when you’re buying a chicken /tʃi:p/?’

‘I don’t know.’

Riddle 10

‘Because I think you said ships instead of chips cos I sometimes have fish and chips from the chip shop.’

‘*And anything else?*’

‘No.’

Riddle 11

‘Because um cos that sounds right and I think leopards might be a bit spotty.’

‘*And anything else?*’

‘No I don’t know if they’re spotty or not. I’ve never seen one.’

‘*Anything else?*’

‘No.’

Riddle 12**

‘Because he was so embarrassed cos he was seeing his mum singing in the bath so he felt like he should eat his homework.’

Riddle 13

‘Because I think /tʃi:təz/ is an animal and /tʃi:təz/ are also mean people cheat playing games.’

Riddle 14

‘Because um cross um is something the meaning of angry and um some people cross roads when the when you walk when you’re crossing a road.’

Riddle 15

‘Cos mice squeak and there’s a game called hide and seek.’

Participant 33

Riddle 1

No multiple choice made and no explanation given.

Riddle 2*

‘Because like seven is bigger and it might bully it.’

‘*And anything else?*’

‘Nah.’

Riddle 3

‘Because like he’s a skeleton. He has nobody to go with cos like a sele-skeleton.’

‘*And anything else?*’

‘No.’

Riddle 4

‘Because like babies dribble because they’re like babies and it dribble as well as a football. You dribble a football (mimes kicking ball).’

Riddle 5 (riddle 21 substituted)

‘Because if in like real life it’s an optician because and a frog can hop so it’s a hoptician.’

Riddle 6

‘Because like Spiderman he can climb up the walls and he might not wanna be with anyone and think about things so he goes up the wall.’

‘*And anything else?*’

‘Nah.’

Riddle 7

‘Because like they’re both food like sometimes they both wobble.’

‘*And anything else?*’

‘No.’

Riddle 8

‘Because like he’s a carpenter and he carves things and uses his hammer to like chisel things.’

‘*And anything else?*’

‘Nah.’

Riddle 9

‘Because some chickens are like expensive but it’s /tʃi:p/ and they go /tʃi:p/.’

Riddle 10

‘Because like it’s they do eat fish and instead of chips they eat ships cos they’re on the sea as well.’

Riddle 11

‘Because like leopards they’re spotted as well the thieves are spotted as well so that’s the answer.’

‘And what does it mean that they’re spotted?’

‘Because they get spotted.’

Riddle 12

‘Because there’s like a phrase called a piece of cake and it means like easy but he thought the homework was a piece of cake to eat.’

Riddle 13 ‘Because there’s like animals that are called /tʃi:təz/ and there’s people who cheat and they’re called /tʃi:təz/ as well at cards.’

Riddle 14

‘Because some roads you can cross like cross between (indicates with fingers) and you have to have traffic lights and you can also be cross in in like angry.’

Riddle 15

‘Because like the normal game it’s called hide and seek but because he’s a mouse he calls it hide and squeak cos he squeaks.’

Participant 34

Riddle 1

‘Because he was playing around.’

‘And anything else?’

‘No.’

Riddle 2*

‘Because seven is bigger than six.’

‘And anything else?’

‘No.’

Riddle 3**

‘Because he doesn’t have any skin.’

‘Anything else?’

‘No.’

Riddle 4*

‘Because they’re babies and babies kick their legs.’ (Shrugs and shakes head).’

Riddle 5

‘Because bananas you can peel them. Nothing else.’

Riddle 6

‘Because Spiderman has webs and he runs up walls.’

‘And anything else?’

‘No.’

Riddle 7*

‘Cos jellies are wobbling when you shake the plate they wobble (shrugs and shakes head).’

Riddle 8*

‘Because some people can’t see. When they have glasses they can see better.’

‘Anything else?’

‘No.’

Riddle 9

‘Because they’re less money.’

‘And anything else?’

‘No.’

Riddle 10*

Because wha- whales um live in the sea and so do sea creatures.

And anything else?

No.

Riddle 11

‘Because leopards have spots and it kind of works with it. Nothing else.’
(shakes head)

Riddle 12

‘Because you eat cake and the teacher said it was a piece of cake so . . .’

‘Why do you think the teacher said it was a piece of cake?’

‘Because you eat cake and he and he thought like eat my homework cos it’s a piece of cake.’

Riddle 13

‘Because /tʃi:təz/ live in the jungle and sometimes you get /tʃi:təz/ who play wi- play at cards.’

‘And what do /tʃi:təz/ do when they play with cards?’

‘Um they just cheat.’

Riddle 14

‘Don’t know.’

Riddle 15

‘Because mouses squeak and there’s a game called hide and seek but they changed the word for it to squeak.’

Participant 35

Riddle 1

‘Because um robots they’re like made kind of thing and it’s um screws it they come loose kind of thing and then they like break so they so cos it’s a robot it will kind of act silly.’

‘That’s right and anything else?’

‘Um no so thank you.’

Riddle 2 (riddle 28 substituted)**

‘Cos gnomes are usually really small and because they’re all the same height kind of thing and he that just one is just a bit taller and they want them to be smaller so kind of thing.’

‘Ok. Anything else?’

‘Um yeah because you know when gnomes they sit in your back garden and then they’re like that small so . . .’

‘Yeah?’

‘And then you’re taller and then it the that gnome was like massive so trying to make him go tell him off because you’re too tall kind of thing.’

Riddle 3

‘Because skeletons they don’t have any like skin or anything so and then you get nobody to go with no body kind of thing cos they’re just they’re just bones and if they had a body they would have somebody to go with but cos it’s just a skeleton it doesn’t have anybody to go with kind of thing cos it’s just a body (laughs) like a skeleton.’

‘Anything else?’

‘Um nah.’

Riddle 4

‘Because you know like dribbling with the ball kind of thing you know like babies actually dribble ki- with their mouths so cos I choose that one because um kind of you it means kind of thing is the football one because actually it’s like their dribbling kind of thing and that’s why I chose number one.’

Riddle 5

‘Because you know when you know you’re not feeling well and bananas peel kind of thing so they would say they’re not peeling well.’

Riddle 6

‘You know cos spiders they climb up walls and stuff and they like they they always like climb up so that’s how they get up on the roof kind of thing and he’s Spiderman so he’s climbing up the wall kind of thing.’

‘That’s right. Anything else?’

‘Um yes cos also cos Spiderman has webs and stuff spiders have webs and cos it’s quite easy for them to climb up the walls cos they have really thin legs and stuff and that’s what webs help them do as well.’

Riddle 7

‘You know cos jelly jelly wobbles an’ and probably kinda frighten and started to wobble cos it saw something else shaking and like milkshakes don’t really (laughs) shake cos it has shake at the end though that’s what kind of makes it a joke so that’s why it’s scared.’

‘Anything else?’

‘Um nah.’

Riddle 8

‘You know cos a saw you could say an eye you know when you use your eyes to saw and you saw something or you know cos a cos he’s a carpenter you’d need to saw some of the carpet and an actual saw’s a tool and he kind of cos he um had to like see so he didn’t need to go and get some glasses cos he saw with his eyes that’s what makes it a joke I think.’

Riddle 9

‘Because you know like baby chickens they go like the sound’s like /tʃi:p/ really li- really high pitched and co- cos they say when they go /tʃi:p/ that’s what kind of makes it a joke cos babies chickens go /tʃi:p/ yeah.’

‘Anything else?’

‘Um yeah cos when things are usually /tʃi:p/ as well um well they more more people buy them and then with the chickens though it’s kind of make it more funny cos that’s what babies chickens do.’

Riddle 10*

‘Cos you know whales there’s there’s an animal and it’s our country but I think it means meant by an animal and they eat all tasty little creatures and when they eat it they they go down and then that’s what you mean by whales and stuff.’

‘Anything else?’

‘Yeah and our country Wales is like the same sounds the same as an actual animal whale.’

Riddle 11

‘Cos leopards they they have spots on them and it kind of makes it quite funny because they’re always spotted cos they have spots all over them and um when they like walk past they they’re spotted cos people say spotted for their eyes kind of thing though cos they spot somebody and but it the leopard’s spotted on its like skin.’

Riddle 12

‘Because you know when he the teacher says it’s a piece of cake ki- they kind of mean it’s easy but then he I probably he probably thought he could eat it cos he said it was a piece of cake.’

Riddle 13

‘Because there’s an animal there’s there’s an animal called /tʃi:tə/. There’s loads of /tʃi:təz/ and also um /tʃi:təz/ in people kind of mean um that you cheat looking at cards and stuff and cos they chose I chose /tʃi:təz/ because um cheat as in the animal /tʃi:təz/ and there’s /tʃi:təz/ in well like with us kind of thing and that’s what probably makes it funny.’

Riddle 14

‘Because you know the roads they um they’re like you could go kind of that way that way or that way (indicates using fingers) and they’re that’s a cross and probably cos the road was cross kind of thing that’s probably why it makes it funny cos it’s a cross and then you cos there’s two words there’s two meanings for cross cos there’s when you’re really cross and a cross um a road kind of thing.’

‘And when you’re really cross what does it mean?’

‘Kind of like you get well too mean and then you start getting a bit hard on people.’

Riddle 15

‘Because you know mouses they squeak really high and um hide an- hide and seek so probably the game was hide and seek um squeak cos um mouses do squeak really high as well.’

Participant 36

Riddle 1

‘Because um a robot has screws in it and and my mum says um my mum says when I’m silly um put a screw in it and (laughs) and um and um that just goes well with the joke.’

Riddle 2 (riddle 28 substituted)

No multiple choice and no explanation given.

Riddle 3 (riddle 25 substituted)

‘Because the food hotdog I find it very hot you might not but um and hotdog it goes well with the dog the actual dog and it might be hot that’s why I chose that one.’

Riddle 4

‘Cos babies dribble um and um dribble as in the football when you kick it side and forward that’s why um I chose that joke that part.’

‘Thank you and can you explain what you mean by babies dribble?’

‘Babies dribble by when they when s- saliva comes out.’

Riddle 5 (riddle 21 substituted)

‘Um becau- I chose that one because um um frogs hop and the there there’s something called the hop hop no opstacion and and hopti- -tition goes well with that so . . .’

Riddle 6

‘Cos Spiderman has magic powers and um he can climb up the wall like spiders do and and um and he he and the other one cos he got cos someone got angry because they got up a um wall and they couldn’t get down (shrugs).’

Riddle 7

No multiple choice made and no explanation given.

Riddle 8

‘Cos carpenters sometimes carve stuff but sometimes they build stuff too when they use their hammer and and also a saw and um a saw like you saw something um is good so I think that goes well with that joke.’

Riddle 9

‘Um cos chickens /tʃi:p/ cos cos cos chick chicp- chickens /tʃi:p/ and cos and they were /tʃi:p/ like someone went something went /tʃi:p/.’

‘And what does it mean when something went /tʃi:p/?’

‘Um when the pli- price goes low.’

Riddle 10

‘Cos fish you eat. It would be chips but it’s ships cos blue whales are massive and there’s ships sail across the ocean.’

Riddle 11

‘Cos /fɪ:təz/ are spotted black spots on them and also um um someone’s been spotted when they’re trying to rob something.’

‘And when does it mean when they’re spotted when they’re trying to rob something?’

‘When when someone spots them, someone sees them.’

Riddle 12

No multiple choice made and no explanation given.

Riddle 13 (riddle 16 substituted)

‘Um I chose that one cos pu- the pupils as in children and the pupils as in eyeballs and sometimes the sun reflects on them so they go light.’

‘And anything else?’

‘Um no.’

Riddle 14

‘Cos people cross roads and and cross meaning as cross when you’re really cross and you’re angry with someone and crossroads so that’s why I think that one goes well with that joke.’

Riddle 15

‘Cos mouses squeak and also the it should be hide and seek a but hide and squeak squeak so that.’

Participant 37

Riddle 1

‘Because robots they have screws and um if he had a screw loose they’d probably go crazy.’

Riddle 2*

‘Because seven it’s um it’s a bit bigger than six and six is a bit smaller than seven.’

‘And anything else?’

‘No.’

Riddle 3

‘Because skeletons they have no like skin or anything and he probably didn’t have anything one to go with either.’

Riddle 4

‘Because babies they like to dribble.’

‘What does that mean?’

‘It means like er when you’ve got a lot of spit and you dribble.’

‘And anything else?’

‘No.’

Riddle 5

‘Because um you peel bananas to eat them and if he wasn’t peeling well he probably wasn’t oh he probably wasn’t feeling well.’

Riddle 6

‘Because Spiderman he’s a spider and spiders like to go up the wall.’

‘And anything else?’

‘No.’

Riddle 7

‘Because um in the name milkshake um there’s a shake and probably the jelly heard and the jelly wobbled cos of shake.’

‘And anything else?’

‘No.’

Riddle 8

‘Because um it’s like because um the question was “Why could the carpenter see?” it’s because like um he picked up his hammer and saw it’s like a saw and you saw.’

‘What do you do, what do you, can you explain what you mean by s-?’

‘What I mean is like there’s um the saw and um he saw his hammer so like he saw it.’

Riddle 9*

‘Because um if they were going /tʃi:p/ it was like um it would like be going it would be still alive where if it was fresh it would be ready to eat.’

Riddle 10

‘Because um they are underwater and there’s fish underwater so they probably like caught um they probably like caught some fish to eat for dinner.’

‘And anything else?’

‘No.’

Riddle 11*

‘Cos like the robbers they like steal stuff and they’re the police come and they get caught.’

‘And anything else?’

‘No.’

Riddle 12

‘Because like the boy he may be like eating cake and like teachers say it’s like a piece of cake because it’s quite easy.’

Riddle 13

‘Because um the name /tʃi:tə/ it’s like um you can cheat and when you cheat it’s like not very good and if you play cards and um a /tʃi:tə/ just jumps in or probably cheats.’

‘And anything else?’

‘No.’

Riddle 14*

‘Um because um . . .’

‘Do you want me to read it again?’

‘Um hum.’

‘Ok um “When are roads angry? When the birds are singing, when they are crossroads, “when you annoy them?”’

‘Um when you annoy them.’

‘And can you explain why?’

‘Because when you cross a road it may get annoyed when you walk over it because if you were angry you may stomp on it.’

‘And anything else?’

‘No.’

Riddle 15*

‘Because mouse mice they like to eat cheese and um when they eat cheese I think they feel happy.’

‘Anything else?’

‘Nah.’

Participant 38

Riddle 1

No multiple choice made and no explanation given.

Riddle 2 (riddle 28 substituted)

‘Well because um you kind of he looks like a /gɒblɪn/and /gɒblɪn/ and they’ve kind of changed the ‘ing’ to the ‘in’ ‘n’ and um it sounds quite funny.’

‘Can you explain why it sounds funny?’

‘Because um it it sounds like he’s I’m not really sure though (laughs).’

Riddle 3

‘Because um he doesn’t have a body and then there’s a per- there’s somebody and um it’s quite funny because he’s saying there’s nobody to go with there cos he doesn’t have a body.’

‘And anything else?’

‘No (laughs).’

Riddle 4 (riddle 16 substituted)

‘Because you’ve got pupils as in um things that she has to teach them her pupils that are in her eyes and um her pupils are so bright and um she it’s like um she’s saying like her pupils are so bright.’

Riddle 5

‘Well because um you can peel a banana and um they they’ve kind of changed the ‘f’ to a ‘p’ so it sounds like he wasn’t peeling well instead of he wasn’t feeling well.’

Riddle 6

No multiple choice made and no explanation given.

Riddle 7

‘Um because like there’s a milkshake as in when you drink and then there’s a um and there’s there’s a shake as in like um rattle kind of something and um it’s quite funny because he’s he’s talking about milkshake that you drink.’

Riddle 8

‘Because um he can see as in saw and there’s um a saw that you use to cut wood.’

Riddle 9

No multiple choice made and no explanation given.

Riddle 10

‘Well because um there’s um like ships as in well there’s ships and like you sail on and um he likes um and he likes um like um biting ships and then they sink and then he eats the people on the ships.’

Interruption during recording so explanation re-recorded:

‘Well because um there’s um ships that sail and um he he likes bites the ships and then he eats that and then he um like all the people come down and then he eats them.’

Riddle 11

‘Um well because um they’re spotted as spotted as you can see them you got spotted and then there’s um spotted as you’re like you got spots on and um and they’re spotted so um that’s why I think it’s funny.’

Riddle 12

‘Well because like a piece of cake is like sometimes it means simple and you can have a piece of cake and um a piece of cake he thought it was um he she was meaning an actual piece of cake.’

Riddle 13

‘Because there’s um animals that are /tʃi:təz/ and there’s a /tʃi:tə/ that that is um that you um did it you cheated and um um and the /tʃi:təz/ um um the /tʃi:təz/ like play games with cards and then they just cheat all the time.’

‘And what does it mean when you cheat all the time?’

‘Well you just don’t play it properly.’

Riddle 14

‘Well because there’s um cross roads and then there’s um a cross as in you’re angry kind of and um they’re cross roads so um they get really cross.’

Riddle 15 (riddle 21 substituted)

‘Um because they hop and um the hoptician is actually quite funny because they hop and then it’s called the hoptician’s.’

‘And why do they say hopticians?’

‘Because um I’m not really sure.’

Participant 39

Riddle 1

‘Um I chose it because um he the robot has sc- screws and if he had a screw loose he would go a bit mad silly.’

Riddle 2

No multiple choice made and no explanation given.

Riddle 3

‘I chose it because skeletons have no bodies.’

‘And anything else?’

‘Er no.’

Riddle 4

‘Um I know that because um er babies dribble and they can dribble a football.’

‘What does it mean when babies dribble?’

‘Um it means like they have like saliva coming out of their mouth here (points to mouth).’

Riddle 5

‘I chose it because it sounds a bit like he’s not feeling well so . . .’

‘Anything else?’

‘Um and bananas get peeled’.

Riddle 6

‘Um because Spiderman goes up the wall normally he climbs up the wall so if he was angry he would go up the wall.’

‘Anything else?’

‘No.’

Riddle 7**

‘Um cos she’s afraid of the dark.’

Riddle 8

‘Cos there’s too many (?) he picked up his hammer and saw that he would like hammer wood with but then the other one is um he picked up the hammer and like saw something.’

‘And what does that mean when he saw something?’

‘Um like he looked at it.’

Riddle 9**

‘Um cos when they’re out.’

Riddle 10

‘Cos sometimes whales eat ships and stuff but then i- it sounds a bit like chips and they eat fish too.’

Riddle 11

‘Because um leap- um leopards have spots and people can spot them if they’re trying to cheat.’

‘And what does it mean if people can spot them?’

So like they can see them doing it.’

Riddle 12

‘Because cake is nice and she might of meant it like to say well it’s like a piece of cos cake is nice but he thought it was a piece of cake so he ate it.’

‘And anything else?’

‘No.’

Riddle 13

‘Because in the jungle you get /ɪfɪ:təz/ um the animal but you can on cards you can also cheat so um it’s kind of like a I don’t know (laughs).’

‘And what does it mean whey you cheat at cards?’

‘Um so like you look at a card or something. ‘

Riddle 14*

‘Don’t really know (laughs).’

Riddle 15

‘Um I chose it cos um it sounds a bit like hide and seek but it’s hide and squeak and mouses squeak.’

Participant 40

Riddle 1

‘Um because the they um have screws but that’s it (laughs) really.’

Riddle 2

No multiple choice made and no explanation given.

Riddle 3 (riddle 25 substituted)

‘Because um you can get a food that you eat as a hotdog and a type of oh and then because it’s been in the sun all day it’s gonna be quite hot.’

Riddle 4 (riddle 16 substituted)

‘Because she can be bright as in very clever or you can be bright as in something’s bright and you can’t really see it very well.’

Riddle 5 (riddle 21 substituted)

‘Because it’s like the optician but hoptician because frogs hop and . . .’

Riddle 6

No multiple choice made and no explanation given.

Riddle 7

‘Because when jelly wobbles it sort of it sort of like shake and um what happened or and then milkshake it’s like it’s got shake in it so . . .’

‘And what’s a milkshake then?’

‘A milkshake is (laughs) I don’t know.’

Riddle 8 (riddle 29 substituted)

‘Because um another type of frog is a /toud/ and then or you can get /toud/ as in just you get /toud/ when you break down and then the frog broke down and he got /toud/ away.’

Riddle 9

‘Because um sometimes chickens they sort of make they either make a cock-a-doodle-doo sound or like little baby chicks they make /tʃi:p tʃi:p tʃi:p tʃi:p tʃi:p/ (imitates sound) like that and (laughs).’

‘And anything else?’

‘No.’

Riddle 10

‘Because it’s like um ships um go in the sea and it’s like um just because what (?) (laughs) whales can sometimes swallow ships as well and um you instead of chips it’s ships.’

Riddle 11

‘Because leopards have got spots on them and it’s like they’re always spotted and they’ve got spots as well.’

‘And what does it mean when they’re always spotted?’

‘Then you can see them ea- easily.’

Riddle 12

‘Because some it’s like a saying sort of like um when you’ve or if you’re saying it’s easy you say it’s a piece it’s a piece of cake but then he must of thought that it was actually a real piece of cake.’

Riddle 13 (riddle 18 substituted)

‘Because um well because that um they’re meant to be funny and then or you can eat something and then it tastes the funny as in a bit weird or something.’

Riddle 14*

‘Um I don’t really know.’

Riddle 15 (riddle 22 substituted)

‘Because um it’s like or it’s gr- a brussels sprout is green and then you can have scouts that go camping or something or that go camping.’

Participant 41

Riddle 1

‘Umm because well I’m not really sure but . . .’

Riddle 2

‘Um can’t explain again (laughs).’

Riddle 3

‘Because skeletons don’t really have any skin. They just have bones so they don’t really have a body.’

‘And anything else?’

‘No.’

Riddle 4

‘Um because babies dribble and it comes out of their mouth and footballers dribble around cones and stuff like that.’

Riddle 5

‘Um because bananas you peel a banana and if you don’t feel well it’s feel instead of peel.’

Riddle 6

‘Because spiders climb up a wall and it some people say it’s like a saying you g- they go up the wall.’

‘And what what can you explain what they mean when they use that saying?’

‘Um like really angry.’

Riddle 7

‘Cos it’s the I think it’s meant to be like the milk shake but instead but instead they’ve done milk and then shake (mimes shaking an object) and it the milk shook so it copied it.’

Riddle 8

‘Um because you saw s- some something out of with your eyes and you can saw something with a saw.’

Riddle 9

‘Um because chickens /tʃi:p/ and and that’s it (laughs).’

Riddle 10

‘Um because we eat fish and chips in Wales and whales since they’re in the water they eat they would eat the ships as well instead of chips.’

Riddle 11

‘Because /ʃi:təz/ have spots and they’re spotted.’

‘And what does it mean when they’re spotted?’

‘They’re caught.’

Riddle 12

‘Cos it’s a saying like it’s a piece of cake and then you eat cake so he thought that he could eat his homework.’

‘And do you know what that saying means? A piece of cake?’

‘It’s easy.’

Riddle 13

‘Cos there are /tʃi:təz/ in the um jungle.’

‘What what what what is a /tʃi:tə/ in the jungle?’

‘It’s an animal and cheat is you cheat at something.’

Riddle 14

‘Because there is there are roads called crossroads and cross is angry so . . .’

Riddle 15

‘Um because the game called hide and seek and mouses squeak so it would be hide and squeak.’

Participant 42

Riddle 1

‘Er I’m not too sure maybe because um robots have screws in them and if he had a screw loose he wasn’t really in his usual mood or something.’

‘*Anything else?*’

‘Not really no.’

Riddle 2

‘Because um when they say seven /*ert*/ nine it’s saying that seven um starts eating other numbers but then /*ert*/ is also the number after seven so they said seven /*ert*/ nine.’

Riddle 3 (riddle 25 substituted)

‘Er because a hotdog is something that people eat but then you said ‘Why did he have a temperature?’ Because he was hot.’

Riddle 4

‘Cos babies er dribble a lot so they spit everywhere and then dribbling a ball is something you do when you are playing football.’

Riddle 5

‘Because um banan- you peel a banana to eat it but then peeling rhymes with feeling so that’s like saying he wasn’t feeling well.’

Riddle 6

‘Because I think when you say going up the wall you’re in a bit of a bad mood but then Spiderman can walk up walls.’

Riddle 7

‘Because um a milkshake is a drink um and also it’s like saying the milk is shaking.’

Riddle 8

‘Is it because um wh- when the carpenter couldn’t see um s- he some something a carpenter uses is hammer and saws um so but saw is also like seeing so picked up his hammer and saw.’

Riddle 9

‘Cos I think cheeping is a noise that hens make but then going /*tʃi:p*/ means they’re not that expensive.’

Riddle 10

‘Because fish and chips is a type of food but then ships are something that um sail across the sea and whales live in the sea.’

Riddle 11

‘Cos um leopards have spots but then being spotted is that someone finds out what you’re doing so they can see you.’

Riddle 12

‘Cos when people say um it’s a piece of cake some people say it’s easy but the boy was a bit silly and he took it literally and ate it because he thought it was something you eat.’

Riddle 13

‘Because /tʃi:təz/ are a type of animal that live in the jungle but then cheating is something people do when they’re not playing fairly so . . .’

Riddle 14

‘Because um cross is being angry and then er there are crossroads which are just cross (uses fingers to make a cross junction) basically.’

Riddle 15

‘Because hide and seek is a game that people play but then mouses like to squeak so they’ve changed it and said hide and squeak.’

Participant 43

Riddle 1

‘Um because er robots have screws in them and a screw loose is like a saying.’

‘And can you explain what that saying means?’

‘No’.

Riddle 2 (riddle 28 substituted)

‘Because like goblins are short like dwarves and it’s er taking off like the ing and replacing it from an in so instead of gobbling as in the food it’s goblin.’

Riddle 3**

(shrugs and shakes head)

Riddle 4 (riddle 16 substituted)

‘Cos there’s a pupil in your eye and pupil as in students and it’s a bit of like something where there it’s a cross reference.’

Riddle 5

‘Um because it’s feeling and then it’s changed it for peeling which is how you get to a banana.’

Riddle 6

‘Um because like he has his special spider thingy so he can like walk up walls and then it’s like a saying meaning he got angry.’

Riddle 7

‘Er because a milkshake is a drink and because shake and wobble are the same word for don’t know oh the same meaning but different words.’

Riddle 8

‘Er because saw as in like the past tense of see and saw as in like something you use for cutting things.’

Riddle 9**

‘I don’t know (shakes head).’

Riddle 10

‘I choose fish and chips because um ships is a bit like chips and it’s referring to the Moby Dick story.’ (Nods)

Riddle 11

‘Er because um leopards are spotting spotted and spotted as in they were seen.’

‘Okay and what do you meant by leopards are always spotted?’

‘Because um their like fur has spots on them.’

Riddle 12

‘Er cos there’s cake as in the food and then there’s the saying a piece of cake meaning it’s easy.’

Riddle 13

‘Er because there are /tʃi:təz/ as in the animal and /tʃi:təz/ as in someone who doesn’t play fair.’

Riddle 14

‘Er because there’s crossroads as in a junction on a road and crossroads as in a ro- as in cross as in like angry and then road.’

Riddle 15

‘Er because it’s um hide and seek but instead of it’s squeak which is the sound mouse mice make.’

Participant 44

Riddle 1

‘I chose because he had a screw loose because robots are put together by screws and if you’re quite silly or stupid then people say you have a screw loose.’

Riddle 2

‘Because if seven /ett/ nine that’s kind of like seven /ett/ nine is all the numbers. Um I don’t know why (laughs) I really chose that except for that.’

Riddle 3 (riddle 24 substituted)

‘I chose kidnapper because nap means sleep and it’s a child and another world for child is kid.’

‘And anything else?’

‘Not really.’

Riddle 4

‘Dribbling is football in football is running with the ball and babies dribble a lot with their mouths.’

Riddle 5

‘Because bananas peel and if they don’t peel very well they’re obviously quite not a good banana they’re bruised’

‘And anything else?’

‘Nope.’

Riddle 6

‘I chose Spiderman goes up the wall when he’s angry because spiders can go up walls and it’s a saying if people are angry they’re going up the wall.’

Riddle 7

‘I chose because she saw the milk shake because milkshake is a type of drink and watching milk shake can make you shake.’

Riddle 8*

‘I chose he put on his glasses because that’s pretty much the obvious answer.’ (Shrugs)

Riddle 9

‘I chose that one because chickens can go like /tʃi:p tʃi:p tʃi:p/ (imitates sound) and a /tʃi:p/ um chicken would be quite good for Christmas dinner.’

‘And why would a /tʃi:p/ chicken be good for Christmas dinner?’

‘Because you don’t cos then you have more money to spend on presents.’

Riddle 10

‘Whales eat fish and ships because fish and chips is quite a traditional British food and lots of people eat it and instead of fish and chips whales eat fish and ships because they’re very big they can probably eat a ship and and fish.’

Riddle 11

‘Because leopards have spots on them and when you get spotted yeah somebody seeing you.’

Riddle 12

‘Because piece of cake is a saying as it’s easy and if somebody’s stupid then they’re going to eat their homework that was apparently a piece of cake.’

‘And anything else?’

‘No.’

Riddle 13 (riddle 17 substituted)*

‘I chose that one because if you cross a sheep with a trampoline thing the trampoline the the sheep is probably going to bounce on the trampoline.’

‘And anything else?’

‘Nope.’

Riddle 14

‘Because crossroads are when like two roads cross and cross is another word for angry.’

Riddle 15*

‘I chose that one because mice like cheese.’

‘And anything else?’

(Laughs) ‘No not really thank you.’

Participant 45

Riddle 1

‘Um I chose that one because um robots like have screws in them and if maybe there was a screw undone that they would malfunction er they wouldn’t malfunction properly meaning that they might act silly.’

‘And anything else?’

‘Um not really.’

Riddle 2 (riddle 28 substituted)

‘Cos gnomes are sort of like goblins and if they’re /gɒblɪn/ food it sort of sounds like /gɒblɪn/ sort of sounds like /gɒblɪn/ which is like eating too much food.’

Riddle 3

‘Because normally when you say someone doesn’t um have anybody to go with it means like they don’t have like a partner to go with but the reason it would probably it would be a joke is because skeletons don’t have bodies so they literally they couldn’t go with a body.’

Riddle 4 (riddle 16 substituted)

‘Because the term bright means they’re clever or it means that something’s um quite a light um say like a light light.’

Riddle 5

‘Because peeling sounds like feeling s- so and it’s there’s like if you don’t peel very well there’s something wrong with you like so there was something wrong with the banana meaning he wasn’t feeling very well.’

Riddle 6

‘Because the term he goes up the wall means that he gets like really angry like they drive him up the wall and the fact the weird the funny thing is that he can literally go up walls because he can like shoot webs.’

Riddle 7

‘Because if the um if the milk was shaking it kind of means like the milk was like scared meaning that if the milk’s scared of something then the jelly could be scared of something as well.’

‘And anything else?’

‘Mm no.’

Riddle 8

‘Because he picked up because it says he picked up his hammer and saw so if he picked up his hammer and then suddenly he could see again because he could see again because it said he saw.’

‘And anything else?’

‘No.’

Riddle 9

(Laughs) ‘I don’t know.’

Riddle 10

‘Cos if you eat fish and chips it’s a food but if you eat fish and ships because ships may be like shipwrecked at the bottom of the sea the whale can go and eat it.’

Riddle 11

‘Because if you’re spotted it means that someone’s seen you and also leopards are spotted.’

‘And can you explain what you meant by leopards are spotted?’

‘They’ve got spots on them.’

Riddle 12 (riddle 34 substituted)

‘Because when you pull someone’s leg it means you’re playing a trick on them and that’s sort of a joke but l- snakes don’t have legs so you can’t pull tricks on them.’

Riddle 13 (riddle 18 substituted)

‘Because la- um because clowns are funny in in the if er the lion ate it then it he must taste funny taste funny (points to throat).’

‘And can you explain what you mean by clowns are funny?’

‘Because clowns tell jokes and do funny tricks like maybe tricks of them failing and stuff.’

Riddle 14

‘Because cross means like you’re angry with someone which means they wouldn’t be they would be angry and cross also means crossroads means there’s two roads meeting each other and then they (makes a cross intersection with fingers) yeah.’

Riddle 15

‘I chose it because um if hide and squeak like mice squeak and hide and sneak is a popular game.’

Participant 46

Riddle 1

'I chose it because if you have a s- if a robot has a loose screw it could contr- it could change all of his personalities.'

'And anything else?'

'No.'

Riddle 2*

'I chose that because s- seven is higher is a higher number than six.'

'And anything else?'

'No no.'

Riddle 3*

'I chose that because if you're skeleton you're coming back from the dead.'

'And anything else?'

'No'.

'No?'

(Shakes head).

Riddle 4

'I chose that because when babies are u- newborn babies come around they usually dribble a lot.'

'And what does that mean when they dribble a lot?'

'When they dribble a lot it means that they're usually hungry.'

'And anything else?'

'No.'

Riddle 5**

Multiple choice made but no reason given for choice.

Riddle 6

'I chose that one because Spiderman usually climbs walls using webs.'

'Anything else?'

'No.'

Riddle 7**

'I chose that one because usually if it's midnight some people have um I can't think of the word um (sighs) it's like when you believe in things like believing in ghosts some people have that and they could be scared of that.'

'Anything else?'

'No.'

Riddle 8

'No reason.'

Riddle 9

No multiple choice made and no explanation provided.

Riddle 10**

‘I chose it because maybe it kind of got hungry and they have earrings on.’

Riddle 11

‘I chose that because leopards are spotted.’

‘And can you explain what you mean by leopards are spotted?’

‘I mean leopards are spotted um from they their fur they are orange with black spots.’

‘And anything else?’

‘No.’

Riddle 12

‘I chose this one because maybe it was um the work was a bit easy so then he said it was a bit of cake.’

‘And anything else?’

‘No.’

Riddle 13

‘Because in the jungle you can find a lot of wild animals especially /tʃi:təz/ and /tʃi:təz/ are huh well you could say they’re /tʃi:təz/.’

‘And what what do you mean by they’re /tʃi:təz/?’

‘That’s their name.’

‘And anything else?’

‘No.’

Riddle 14

‘I chose it because if you find a lot of crossroads you could use up a lot of petrol turning and stopping and making sure you get properly instead of just going on a straight track.’

‘And anything else?’

‘No.’

Riddle 15**

‘Because usually if you’re a mouse you’re going to be chased by cats a lot because you’re like their supper.’

‘And Anything else?’

‘No.’

Participant 47

Riddle 1

‘Um cos robots have screws and sometimes having a screw loose kind of means that you’re kind of a bit silly sometimes and well robots and screws they go together so . . .’

Riddle 2 (riddle 28 substituted)

‘Well gnomes are kind of like /gɒblɪn/ they’re kind of you know related to gnomes in a way so um /gɒblɪn/ food that’s another way a mum might tell you off if you gobble too much sweets or so that kind of works out as a riddle.’

Riddle 3

‘Well skeletons don’t have bodies so it kind of nobody to go with and it works well for that joke.’

‘And anything else?’

‘No not really.’

Riddle 4

‘Well babies dribble like naturally so . . .’

‘And what does that mean when babies dribble?’

‘It kind of means that they drool and then football you have to kind of dribble to be a football player so babies dribbling is like a good joke.’

Riddle 5

‘Bananas peel so well you have to peel them to um eat them so feeling and peeling rhymes and well yeah . . .’

Riddle 6

‘Well Spiderman like climbs up walls for his like hobby so goes up the wall is like another term for being angry or mad so . . .’

Riddle 7

‘Um (coughs) well um there’s a type of drink called milkshake and if milk shakes it kind of means that the milk wobbles so scary.’

Riddle 8

‘Well picking up your hammer and saw is probably something that a car-carpenter does and um . . .’

‘Why would a carpenter do that do you think?’

‘So he can you know carpen- wood (mimes sawing something with a saw) and but then you can see or saw by you know so it’s . . .’

Riddle 9

‘Well you can buy chickens like /tʃi:p/ at /tʃi:p/ stores but then they can like /tʃi:p/ when they’re a bit younger so yeah.’

Riddle 10

‘Well um fish and chips is a meal and then whales eating fish and ships is kind of rhymes with it so it makes it a joke.’

Riddle 11

‘Well leopards are spotted so if they’re always spotted it kind of means that you’re caught at doing something so it’s kind of a joke because it makes it you know funny.’

‘And what do you mean by leopards are spotted?’

‘Um well they’re kind of they got spots on them.’

Riddle 12 (riddle 34 substituted)

‘Um pull your leg is kind of like a prank so um to make someone kind of annoyed but because snakes (laughs) don’t have any legs it can mean that you know you can’t pull their legs and it’s a joke.’

Riddle 13 (riddle 16 substituted)

‘Well bright students kind of means that they’re quite clever but then you can change that to bright as in shiny so the teacher has to wear sunglasses.’

Riddle 14

‘Well there are a type of roads called crossroads where there’s like a you know there’s they make a cross and um crossroads can also mean they’re cross as in angry so yeah.’

Riddle 15

‘Well hide and seek is a game when mouse mice um sw- squeak so um hide and squeak is a joke.’

Participant 48

Riddle 1

‘Um I chose it because um well if he has a screw loose then he’s a bit bonkers sort of.’

‘And anything else?’

‘No.’

Riddle 2

‘Because when you count from seven then /eit/ and nine sounds a bit like seven /eit/ nine so then that’s why I chose it’

‘And when you say it sounds like seven /eit/ nine can you explain what you mean?’

It sounds like seven actually like /eit/ nine so yeah.’

Riddle 3

‘Um I chose it because skeletons don’t have body bodies so they had no-one to go with no bodies (points up and down own body) to go with.’

Riddle 4

‘Because in football you can dribble the ball and babies literally dribble (points to mouth).’

Riddle 5

‘Um because you can it just sounds a bit funny when cos you peel bananas and you feel you don’t feel well.’

Riddle 6

‘Cos like if you annoy someone like you’re driving me up the wall sort of they say that sometimes so then he’s not like he’s just like walking up the wall.’

Riddle 7

‘Because well maybe he just wobbled because the milk was the milk was shaking.’

‘And anything else?’

‘No’.

Riddle 8

‘Um I chose that one because like he picked up the hammer and saw but it sounds like he picked up the hammer and like saw the hammer and that’s it.’

‘And what do you mean by he saw the hammer?’

‘Like what I think it’s meant to be saying is he picked up the sa- hammer and saw as two objects but like if he couldn’t see so he picked up the hammer and he saw the hammer sounds like . . .’

Riddle 9

‘Because um like in supermarkets you’d buy a chicken when it’s going /tʃi:p/ sometimes and then like you could say chickens /tʃi:p/ sort of.’

‘And can you explain what it is when chickens are /tʃi:p/ in the supermarket?’

‘Um like when they get reduced.’

Riddle 10

‘Because fish and chips like fish come from the sea and like well comes from the sea like whales are in the sea so they’d have like fish and chips sort of.’

‘And anything else?’

‘No.’

Riddle 11

‘Um I chose that one because um leopards have got spots and they’re always spotted.’

‘And can you explain by what you mean they’re always spotted?’

‘So like every leopard has spots on it like you could say it’s always spotted so you can see it.’

Riddle 12*

‘I chose that one because um it’s a bit funny having friends tells you . . .’

‘And anything else?’

‘. . . it tastes nice. No.’

Riddle 13

‘Cos in the jungle there’s lots of /tʃi:təz/ and um like . . .’

‘Can you tell me what /tʃi:təz/ are?’

‘Well they’re like you in in card games you can have /tʃi:təz/ cheating. Somebody cheats.’

Riddle 14

‘Um I chose that one because like you can have crossroads as in like an actual like cross road and then the road could get crossed cos of that.’

Riddle 15*

‘Um because mouse mice always like try and get cheese so they try and get the cheese.’

‘And any thing else?’

‘No. (shakes head).’

Participant 49

Riddle 1

‘I chose that one because with the robot it doesn’t really like have that it sort of has a screw in it so like they (shrugs).’

‘And anything else?’

‘No.’

Riddle 2 (riddle 28 substituted)**

‘I chose that one because I thought like the mother might be smaller than like talling telling him off because he’s too tall.’

‘And anything else?’

‘No.’

Riddle 3 (riddle 24 substituted)

‘I chose that one because like if it’s a child like going to sleep like cos some people call it a nap so it’s a kid napper nap so kidnapper.’

‘And anything else?’

‘No.’

Riddle 4

‘I chose that one because like babies dribble (points to mouth) so like to go with the joke it sort of makes sense.’

‘And anything else?’

‘No.’

Riddle 5

‘I chose that one because you peel bananas but I can’t really explain that one.’

Riddle 6

‘Because Spiderman sort of like crawls up walls.’

‘And anything else?’

‘No.’

Riddle 7 (riddle 26 substituted)

‘Well because it’s like a football team when you’ve got a ball and then cos at a ball you dance and then you’ve got a football team at a ball.’

Riddle 8

‘I chose that one because carpenters don’t really look out windows that often and they sort of use their tools to do stuff.’

‘And anything else?’

‘No.’

Riddle 9

‘I chose that one cos I think chickens go /tʃi:p/.’

‘And what does that mean?’

‘It means that like you’re either saying that the chickens are /tʃi:p/ in the supermarkets or they’re going /tʃi:p/.’

Riddle 10

‘I chose that one because lots of people in Wales go fishing and they fi- and they go on ships so . . .’

‘Anything else?’

‘No.’

Riddle 11

‘I chose that one because leopards have spots and then it sort of makes sense with the joke.’

‘And can you tell me how it makes sense?’

‘No (laughs).’

Riddle 12

‘I chose that one because there’s a saying saying that means that something’s easy so they say it’s a piece of cake.’

‘And anything else?’

‘No.’

Riddle 13

‘I chose that one because there are /tʃi:təz/ in the jungle and you can also have people who cheat at games so . . .’

‘And can you explain what are the /tʃi:təz/ in the jungle?’

‘They’re animals so . . .’

Riddle 14

‘I’m not quite sure why I chose that one but I chose it because I thought cos like cos you have crossroads (makes cross shape with fingers) and there’s a road that’s the only reason why I chose it.’

Riddle 15

‘I chose that one because it sort of sounds like because we play hide and seek so the mouse would play hide and seek sq-squeak.’

Participant 50

Riddle 1

‘Er because like when you have a screw loose it’s when you’re like kind of like a bit like crazy and then like robots are made of like screws and all stuff so if he had a screw loose it’s kind of like a homophone.’

Riddle 2 (riddle 28 substituted)

‘Because /gɒblɪn/ sounds a bit like /gɒblɪn/ and seeing that it was food he was /gɒblɪn/ food and gnomes are kind of like the same things as goblins.’

Riddle 3 (riddle 24 substituted)

‘I chose kidnapper because like kid is another name for a child and napper is like sometimes you can have a nap which is basically the same as sleeping.’

‘*And anything else?*’

‘Well I’ve heard a joke kind of like that before in a joke book. Do you want me to tell you it or . . .?’

(Tape recorder turned off and joke related. Joke almost identical to riddle related by researcher so riddle 26 substituted instead)

‘Er because like footballers use a football and like as I said in the Cinderella one it’s like a ball as in a dance.’

Riddle 4 (riddle 16 substituted)

‘Er because like it’s another homophone whi- because as in bright as really smart and bright as in like really like like the sun bright um light.’

Riddle 5

‘Because like peeling rhymes with feeling. It’s just one letter away and like you peel a banana to eat it.’

Riddle 6

‘Because Spiderman like has a power to like walk up walls and like when you go up a wall it’s like saying oh he’s driving me up the wall.’

Riddle 7

‘Because like milkshake is like a type of drink and if he saw the milk shake it means like he was copying the milk.’

Riddle 8

‘Because if he picked up his saw that’s like a tool for a carpenter as well as like when you’re able to s- like when you’re looking at stuff.’

Riddle 9**

‘No reason – I just guessed.’

Riddle 10

‘Cos it sounds like fish and chips and like fish it would eat fish because it’s in the sea and ships it would be like a sea-monster to eat ships.’

Riddle 11

‘Because leopards are spotty but it might be /tʃi:təz/ that are spotty. I’m not sure and like if you’re spotted you’ve been seen and it’s not very good if you’re a burglar.’

Riddle 12 (riddle 34 substituted)

‘Because snakes don’t have any legs so you can’t really pull it and like pulling their leg is like like um getting them to believe something that’s not really true.’

Riddle 13 (riddle 17 substituted)

‘Because like sheeps have got lots of wool on them and trampolines are used for like jumping really high.’

Riddle 14

‘Because cr- being cross is like being angry and like crossroads are where like different roads meet.’

Riddle 15

‘Because hide and squeak sounds like hide and seek and mice squeak.’

Participant 51

Riddle 1

‘I don’t really know. I think it just makes it more sense to have a screw loose.’

‘And can you explain why?’

‘Mm cos he’s made of nuts and bolts.’

‘And anything else?’

‘Not really.’

Riddle 2 (riddle 28 substituted)

‘Well there’s goblins who would probably try and eat the gnome and he might be greedy and his mum might not want that to happen so . . .’

‘And anything else?’

‘No not really.’

Riddle 3 (riddle 24 substituted)

‘I think it felt um sounds a bit more funnier than the rest cos um a kidnapper s- sounds like he’s asleep but also a kidnapper is someone who commits a crime.’

Riddle 4

‘Cos dribbling is also a part of football as well as babies dribble.’

‘And can you explain what you mean by babies dribble?’

Well they have spit coming out of their mouths as well.’

Riddle 5

Um well cos bananas peel and h- he wasn’t peeling well sounds a bit more funnier than that he wasn’t feeling well.

Riddle 6**

‘I just think it sounds a bit funny that Spiderman would turn on the radio when he’s angry.’

‘And anything else?’

‘No not really.’

Riddle 7

‘Um cos milkshake is a a drink and if you saw the milk shake it sound a bit more funny than um it was midnight so . . .’

‘And can you explain why it’s more funny?’

‘Well it milkshake is a kind of drink so I just find that more funny than midnight so . . .’

Riddle 8*

‘I just think it sounds a bit more sensible than anything else.’

‘And any reason why it might be in a riddle?’

‘Er no.’

Riddle 9

‘Well they g- um they’re going /tʃi:p/ for about five pounds and then they also are clucking /tʃi:p/.’

Riddle 10

‘Well fish and chips and fish and ships sounds a bit more funny than others.’

‘Is there any reason that why that sounds more funny?’

‘Well cos there’s fish and chips so fish and ships I like that one definite.’

Riddle 11

‘Well leopards have spots all over them so it makes more sense for them to always be spotted.’

‘And can you explain what you mean when they’re always spotted?’

‘Er not really.’

Riddle 12

‘Cos she probably meant it was um easy to do but um he ate it thinking it was a piece of cake (mimes eating)’.

Riddle 13

‘Well cos /tʃi:təz/ are animals in the wild so um that’s their name not really a thing that they do so it would be funny if there was too many /tʃi:təz/.’

‘And can you explain why it’s funny if there are too many /tʃi:təz/?’

‘Well they’re probably meaning the animal but um the um their name /tʃi:tə/ so you might think they would cheat so. . .’

Riddle 14

‘Well um there’s cross roads as in the road that you make a choice (draws imaginary cross on table) and then drive that way and he might be cross so it’s a cross road.’

Riddle 15

‘Well cos there’s like hide and seek and hide and squeak might kind of be like Marco Polo where it’s like um eeeeeeeeeee and then you try and find him.’ (Nods)

Participant 52

Riddle 1

'I chose that one because the robots have screws and it was loose.'

'And anything else?'

'No.'

Riddle 2*

'Because seven is bigger than six.'

'And anything else?'

'No.'

Riddle 3 (riddle 24 substituted)

'I think a that the answer was kidnapper because he the kid was taking a nap.'

'And anything else?'

'No.'

Riddle 4

'I chose because they can dribble because babies can dribble and when you play football you dribble.'

'Ok and can you explain what you mean when you say babies can dribble?'

'As in babies' mouths water.'

Riddle 5

'I chose because he wasn't peeling well because bananas have have to be peeled before they can be eaten and he wasn't really peeling well (laughs).'

'And anything else?'

'(Laughs) Ah no.'

Riddle 6

'Spiderman I think Spiderman would go up the wall because Spiderman uses his powers things to go up walls and he was mad so he went up a wall.'

'And anything else?'

'No.'

Riddle 7*

'I chose that one because the jelly would be wobbling because of the plate being shaken.'

'And anything else?'

'No.'

Riddle 8

'I chose this one because it's more of a joke question and he picked up his hammer and saw so it's just quite good.'

'And can you explain why it's good?'

'(Sighs) Um because like it's it's a bit of a play on words really yeah.'

'Yeah? And can you explain how it's a play on words?'

'Cos of the shaking of the jelly and the shaking of the plate so (sighs) yeah.'

(Tape recorder stopped as participant was confusing this riddle with the previous riddle. Current riddle and punchlines re-read. Participant given opportunity to reselect punchline and to provide explanation.)

‘I think this is the answer to the joke because it’s a play on words with saw and saw and you just goes as a joke together.’

‘So can you explain the play on words with saw?’

‘He picked up his he picked up the hammer and saw instead of actually it’s just a play on words really yeah.’

‘And so what does saw mean?’

‘As in the sharp thing you cut with.’

‘And anything else?’

‘Nope.’

Riddle 9

Multiple choice made but no explanation given.

Riddle 10

‘I chose fish and ships because if you gave a whale a chip I’m not sure it would be the most biggest of dinners he’s had so it’s a bit better to put ships cos a whale would probably like to have a ship.’

‘And anything else?’

‘Nope.’

Riddle 11

‘I chose that one because leobut lep- leopards are spotted and you don’t really want if you’re trying to steal something you don’t want to get spotted so it’s again a play on words.’

‘Okay and can you explain what you mean when you say leopards are spotted?’

‘Well a leopard is spotted with black spots er yeah.’

Riddle 12

‘I chose that one because (coughs) you a piece of cake which you eat and the teacher used it as a saying meaning a piece of cake as in easy.’

Riddle 13 (riddle 16 substituted)

‘I chose this one because children are bright um in this riddle if you used it as bright as sunny bright as a light and . . .’

‘And can you explain what you mean by the children are bright?’

‘You can be bright as brainy and you can be bright as like l- light.’

Riddle 14

‘I chose this one because you can have crossroads and in this joke it’s used it as a crossroad for meaning an angry road instead of a crossroad (uses fingers to make shape of cross).’

Riddle 15 (riddle 20 substituted)

‘I chose this one because on the back of a hedgehog there are a lot of prickles and you can get pickles onions but the riddle again have has played uh on words and done prickle instead of prick.’

Participant 53

Riddle 1

'Um I chose that because um robots are screwed together (mimes screwing object).'

'And anything else?'

'Er no.'

Riddle 2

'I chose that because um well nine is kind of a bigger number than seven but seven looks bigger.'

'And anything else?'

'Uh no (laughs).'

Riddle 3

'I chose that because a skeleton well doesn't it's only bone not really a body.'

'And anything else?'

(Shakes head).

Riddle 4

'Because babies um dribble when they're like small (points to mouth).'

'And anything else?'

'Um w- well a football player dribbles with the ball.'

Riddle 5

'Because you peel a banana to eat it and I've done bananas well they just peel themselves.'

'And anything else?'

'Uh no (laughs).'

Riddle 6

'I chose that because in the movies Spiderman goes up the walls.'

'And anything else?'

'Er no.'

Riddle 7*

'I chose that one because well um when jelly is wobbly and if you wobble the plate then it'll move (mimes shaking object).'

'And anything else?'

'No.'

Riddle 8 (riddle 28 substituted)

'Um I'm not really sure why I chose that one.'

Riddle 9

No multiple choice made and no explanation given.

Riddle 10 (riddle 20 substituted)

‘I chose that one because hedgehogs are prickly.’

‘And anything else?’

‘No.’

Riddle 11

‘I chose that one because leopards are spotty (shrugs).’

‘And anything else?’

‘No thank you’

Riddle 12

‘I chose that one because um the sometimes the expression a piece of cake doesn’t actually mean it’s a piece of cake it’s um means it’s easy.’

‘And anything else?’

‘No.’

Riddle 13

‘I chose that one because um there’s a um animal called /tʃi:tə/ and if they’re playing cards then it might cheat.’

‘And can you explain what it does when it cheats?’

‘It um kind of makes a really loud noise and laughs.’

Riddle 14

‘I chose that one because um quite often there is oh two roads meeting together and they cross.’

‘And anything else?’

‘No thank you.’

Riddle 15

‘I chose that one because mice squeak.’

‘And anything else?’

‘No.’

Participant 54

Riddle 1

‘Well because really um robots like have screws in them to er make them work so it does it holds all the metal in place and all that.’

‘And anything else?’

‘No not really.’

Riddle 2*

‘Well I chose it because seven is a bigger number so it obviously going to be afraid of it like you’re some people are afraid of bullies cos they’re bigger.’

‘And anything else?’

‘No not really.’

Riddle 3

‘Because he has actually skeletons have no body and he had like no like person to go with so it really it just just a riddle.’

Riddle 4

‘Well because babies they don’t know really how to like exist most of the time so they just like dribble all time and like dribble as in football dribble as in like like when I dribble round people and cones and all that.’

‘And can you explain what you mean by babies dribble?’

‘Bec- why well babies dribble because we all do eventually when we’re babies really so dribble and dribble there’s two kinds of meaning really just yeah.’

Riddle 5

‘Well because bananas when you want to eat a banana you can just peel it to eat it and he’s not peeling well which rhymes with feeling so he’s not feeling well it means . . .’

Riddle 6

‘Cos Spiderman has like awesome Spiderman spider abilities like spiders can climb up walls they can make webs they can like just just really just swing from webs and all that kind of stuff but they can like climb up walls cos they have like super (?) thingies or something like that.’

‘And anything else?’

‘Um well mostly it’s because they have like these tiny tiny little like hair thingies that like are sticky so they like stick to the wall so they climb up (mimes climbing) and yeah.’

Riddle 7*

‘Cos if you um had a jelly on a plate and you shook the plate it will like wobble because you know jellies are s- wobble because they’re made of jelly and our brains are just like jelly basically. They only they store memory.’

‘Anything else?’

‘Um no not really. I think I said that because I said it in the Riddle as well (laughs).’

Riddle 8

‘Well because right he’s a carpenter so he uses wood so he would like nail wood he’s like working somewhere so he’s like just like building.’

‘And anything else?’

‘Well mostly because it’s like his job to so really he’s just gonna actually do it yeah.’

Riddle 9

‘(Sighs) Not really no not really. That’s a tricky one.’

Riddle 10

‘Well really because like you get fish and well fish from the um thing but they’ve changed that word so it’s ships so it’s like um meant to be like a riddle.’

‘And anything else?’

‘Because like it’s um meant to be a riddle (laughs).’

Riddle 11

‘Well mostly because leopard. I got this game where you have like it’s like this jungle mat thingy and you just like got to explore and there’s like animals trying to like bite you and stuff and like just drag you off and like bite you and er well leopards are like spotted because er well it’s just camoflauge really and then they like spot there’s a spotted in like looking at something and spotting it say if like they spotted a thie- the police spotted a thief robbing a bank.’

Riddle 12

‘Well because well if you say it’s like a piece of cake there’s two meanings of it. There’s like one is actually be a piece of cake so you just like grab a slice and just yum yum yum yum yum or it’s like a minecraft person and just go nyah and punch it and you eat it and um if another meaning of it is a piece of cake as in like well you like it’s easy a piece of cake. That’(s all).

Riddle 13

‘Cos /tʃi:təz/ have two meanings to it as well (laughs) because there’s an animal /tʃi:tə/ and there’s a what’s it called um (intake of breath) an an actual /tʃi:tə/ who like cheats at something um yeah so a chea- the first /tʃi:tə/ which is like the animal which it is basically like a animal that hunts down people and like just grabs them by the neck and just like chomps on them a lot (mimes eating) and um the /tʃi:tə/ one the person who like cheats well basically just like cheats at cards just like has a f- um loads of um (?) puts them in order so he can s- like slowly grab an ace from his thing and like cheat to win.’

Riddle 14

‘Well because really there’s two kinds of cross road well there’s actually three but I’m not going to mention the third one because it’s um involving wrestling. It’s a move um and er number one is like when roads like cross so roads will now cross so there will be like road roads going that way and one road going that way (draws imaginary lines on table with fingers) and um the other kind of roads is crossed like my friend um is kind of funny in the register his name a they put the names back to front and his name is (name supplied) the one you had and um he we- it’s in backwards so it’s (name supplied)(laughs) and it’s so funny. It’s just when people like cross.’

Riddle 15

‘There’s that one because like you know mi- mice squeak really rush and they like hide as well so really it’s just like hide and squeak. I’m hiding but I’m squeaking. Squeak squeak.’

‘And anything else?’

‘Er no not really.’

Participant 55

Riddle 1

‘Um I chose screw loose because robots are mechanical objects and they have screws in them so like and in the sense that screw loose means a bit mad.’

Riddle 2

‘Because I choose seven /et/ nine because um seven /et/ nine as in the numbers and like seven /et/ nine as in like he actually /et/ him.’

Riddle 3 (riddle 24 substituted)

‘I chose kidnapper because um it’s as kidnapping is in like taking someone and kidnapping is like sleeping.’

Riddle 4

‘I chose because they dribble because they dribble.’

‘*And-*’

‘They dribble as in the football term and dribble as in like . . .’

‘*And can you explain-*’

‘Um well I don’t really know (laughs).’

Riddle 5

‘Because peeling and feeling rhyme and he’s a banana so peeling a banana.’

Riddle 6

‘Well I chose he goes up the wall with the Spiderman Riddle because well he’s Spiderman he can go up walls naturally and as in going up in the wall as like getting really angry.’

Riddle 7

‘Because because jelly wobbles and then milkshake as in like shake (mimes shaking object) so um and like jelly wobbles and like yeah.’

‘*And anything else?*’

‘No I don’t think so.’

Riddle 8

‘Um I chose picked up his hammer and saw because um like saw as in like the saw that you use to saw wood and saw as in like he saw a chair so like seeing stuff.’

Riddle 9

No multiple choice selection made and no explanation given.

Riddle 10

‘I chose fish and ships um because ships rhymes with chips and whales are in the sea cos they don’t eat chips fish chips.’

Riddle 11

‘I chose because they’re always spotted because they’re spotted so they’re like as spotted as in like looking and spotted as in like like the um the what’s it called ah pattern spotted.’

Riddle 12 (riddle 34 substituted)

‘I chose you can’t pull their legs because they don’t actually have any legs to pull. It’s like cos they’re snakes.’

‘And anything else?’

(Shakes head)

Riddle 13 (riddle 16 substituted)

‘The teacher wore sunglasses riddle I chose because her children are so bright because well like bright as in like the sun glare bright and bright as in like they’re clever.’

Riddle 14

‘I chose because they’re crossroads on the roads because well crossroads as in like where there’s four roads coming in together to make a cross and cross as in angry so . . .’

Riddle 15 (riddle 20 substituted)

‘I chose prickled onions because it’s um like because prick um pickles as in like you can pickle an onion and prickled as in like because they’ve got prickles on their backs so it rhymes. It works.’

Participant 56

Riddle 1

‘Because robots have screws and screws like um that yeah.’

‘*And anything else?*’

‘No.’

Riddle 2

No multiple choice selection made and no explanation given.

Riddle 3

‘Cos er skeletons don’t have a body so they’ve got no body.’

‘*And anything else?*’

‘No.’

Riddle 4

‘Because babies dribble when they see food.’

‘*And anything else?*’

‘No.’

Riddle 5

‘Because um bananas peel and peeling so . . .’

‘*Anything else?*’

‘No.’

Riddle 6

‘Cos Spiderman he has sticky feet and he can climb up walls.’

‘*Anything else?*’

‘No.’

Riddle 7

‘Because jelly’s a type of food and milkshake is a type of drink.’

‘*And anything else?*’

‘No.’

Riddle 8

‘Because a hammer and a saw is a type of tool.’

‘*And anything else?*’

‘No.’

Riddle 9

No multiple choice selection made and no explanation given.

Riddle 10

‘Because fish um whales eat and um fish chips normally come with fish and it’s ships instead.’

Riddle 11

‘Cos leopards or spots have got spots on them and they’re always spotted.’

‘And can you explain what you mean by they’re always spotted?’

‘They’ve always got spots on them.’

Riddle 12

‘Because teachers have an expression of saying it’s a piece of cake saying it’s really easy.’

‘And anything else?’

‘No.’

Riddle 13

‘Cos /tʃi:təz/ live in the um jungle and they’ll it’s like them cheating at cards so they won’t be able to win.’

‘And can you explain what you mean by cheating at cards?’

‘So they’ll like make themselves win.’

Riddle 14

‘Cos there’s crossroads and it’s like cross as in like angry and they went so they’re roads crossroads.’

Riddle 15

‘Cos there’s a game called hide and seek and they just changed it to hide and squeak.’

Participant 57

Riddle 1

‘Er not sure.’

Riddle 2

‘Cos um it goes seven /et/ nine after six and seven /et/ nine as it he actually /et/ it (mimes raising object to mouth).’

Riddle 3

‘Because he doesn’t have like a proper body cos he’s just like bones.’

‘And anything else?’

‘Er no.’

Riddle 4

‘Cos um like dribble as in like in football dribble (mimes kicking ball) and dribble as in dribble (points to mouth).’

Riddle 5

‘Er cos he wasn’t like feeling well a banana you like peel bananas (mimes peeling banana).’

‘And anything else?’

‘Nope no.’

Riddle 6

‘Because sometimes if you like get really annoyed you’re like it’s like you’re driving me up the wall you say and Spiderman climbs walls.’

Riddle 7

‘There’s like the milk as in shaking it (mimes shaking object) and also there’s a milkshake.’

Riddle 8

‘Well I said cos he picked up his hammer and saw because um he like cos there’s a hammer and saw (makes sawing action) they’re both like tools and also um a saw is like sawing as in seeing looking.’

Riddle 9

No multiple choice made and no explanation given

Riddle 10

‘Cos there’s like fish and chips like you eat them. Ships cos it’s like really big and it’s ships.’

Riddle 11

‘Well I said it was spotted because um they’re like cos they have spots on them so they get spotted.’

‘And anything else?’

‘No.’

Riddle 12

‘Because um piece of cake can mean piece of cake that you eat (mimes raising object to mouth) and also sometimes when you say something’s easy you say it’s a piece of cake.’

Riddle 13

‘Because um they’re like cheating animals so /tʃi:təz/ are kind of like in the jungle as well. The animals.’

Riddle 14

‘Um because um they’re like crossroads cos they cross and also there’s like cross road with you know (puts on cross expression).’

Riddle 15

‘It’s kind of like hide and seek and also it’s like squeak cos mouses squeak.’

Participant 58

Riddle 1

‘Because um robots have screws.’

‘*And anything else?*’

‘No.’

Riddle 2

‘Because um it sounds like seven /*et*/ nine but it’s actually just numbers.’

‘*And what do you mean by it sounds like seven /et/ nine?*’

‘It’s like seven like it /*et*/ for dinner nine.’

Riddle 3

‘Because um he had no person to go with and he had no body cos he’s a skeleton.’

Riddle 4

‘Because babies are so young they don’t how to like like they dribble (points to mouth) and in football you dribble the ball (mimes kicking ball) so that’s why I like it.’

Riddle 5

‘Because um instead of feeling cos bananas get peeled he said peeling.’

Riddle 6

‘Cos like Spiderman cos he’s a spider he like climbs up the wall and like when people get angry they like my dad says he goes up the wall so yeah.’

Riddle 7

‘Because um the milk there’s a how you can drink drink milkshakes but in other words the milk shakes so the jelly wobbled.’

Riddle 8**

‘I just guessed.’

Riddle 9

‘Because in money they’re /*tʃi:p*/ and um some chickens go like /*tʃi:p*/ as a sound.’

Riddle 10

‘I just guessed.’

Riddle 11

‘Because um you know the thieves they usually get spotted and what’s it jag- like what was the animal?’

‘/*tʃi:təz*/.’

‘/*tʃi:təz*/ they’re spotty so it sounds like they got spotted but . . .’

‘*And when thieves are spotted what does it mean? Can you explain?*’

‘They’re like when they steal something the police catch them so yeah.’

Riddle 12

‘Because um the teacher meant it was um like easy cos some people say like piece of cake and the boy must have thought it was um a actual piece of cake so he ate it.’

Riddle 13

‘Cos in the jungle there’s um /tʃi:təz/ as in an animal so you can’t play cards in the jungle because if like it they’re saying like people will cheat because it sounds like the animal.’

Riddle 14

‘Cos um there’s um something called a zebra crossing so um they get angry and it sounds like when you walk across the crossing so it sounds like they’re cross.’

Riddle 15

‘Cos they say er instead of saying hide and seek it said hide and squeak because mouse squeaks.’

Participant 59

Riddle 1

‘Because robots have screws in them and then he had a screw loose so he has to laugh and stuff so yeah.’ (Shrugs)

Riddle 2*

‘Because seven is bigger than six so it would be bigger number so yeah it would be scared of it.’

‘And anything else?’

‘No.’

Riddle 3

‘Because a skeleton has like no body at all and he has nobody to go with to the ball so yeah.’

‘And anything else?’

‘No.’

Riddle 4

‘Because babies dribble and you can dribble a football so yeah.’

‘And can you explain what you mean by babies dribble?’

‘Babies dribble when all their spit comes out their mouth (laughs) yeah.’

Riddle 5

‘Because bananas peel and if they weren’t peeling well that means they’re ill so or they’re bad.’

‘And anything else?’

‘No.’

Riddle 6

‘Because Spiderman can fly can climb up walls and yeah and then he’s really gymnastics so . . .’

‘And anything else?’

‘No.’

Riddle 7*

‘Because if you wobble the plate (mimes shaking object from side to side) jelly goes up and down and up and down so yeah then it wobbles.’

‘And anything else?’

‘No not really.’

Riddle 8*

‘Because if you put on your glasses you can see and if he has to to work he has to have his glasses so I think that’s all yeah.’

Riddle 9*

‘Because when chickens are fresh that means all the skin’s peeled off and they’re fresh ready to go and people can eat them so . . .’

‘Anything else?’

‘Um no.’

Riddle 10

‘Because um whales eat fish and then if you have chips with it fish and chips.’

‘*And anything else?*’

‘Er no.’

Riddle 11

‘Cos leopards are spotted. They’re orange and black and yeah so yeah that’s why.’

‘*And anything else?*’

‘Um people can see them always cos they’re never really running so. . .’

Riddle 12

‘Because the teacher said that it was easy not really cake so he ate it (mimes raising object to mouth) that’s why.’

Riddle 13

‘Because there’s the animal /tʃi:təz/ and there’s /tʃi:təz/ so that’s why you can never win because there’s people cheating so that’s why.’

Riddle 14

‘Cos on the road they have crossroads so then when people walk past you know go and the cars come past you get they get cross so it’s crossroads the same name as cross.’

‘*And anything else?*’

‘No.’

Riddle 15

‘Because mouses go squeak and they hide in holes and stuff and they try to not be seen so yeah.’

‘*And anything else?*’

‘Not really.’

Participant 60

Riddle 1

‘Um I don’t know.’

Riddle 2

No multiple choice made and no explanation given.

Riddle 3

‘Because a skeleton has no body and yeah.’

‘*Anything else?*’

‘No.’

Riddle 4

‘Um cos when babies are young they like dribble quite a lot (points to mouth) cos they’re teething so that’s why cos . . .’

‘*And anything else?*’

(Shakes head)

Riddle 5 (riddle 20 substituted)

‘Because on a hedgehog’s back it’s got like loads of pricks.’

‘*And anything else?*’

‘Um and they’ve changed pickled onions to prickled onions.’

Riddle 6

‘Cos when spi- cos spiders are like go up the wall and he’s Spiderman so when he goes angry he goes up the wall (mimes climbing) and going up the wall’s a saying as well there’s yeah.’

Riddle 7

‘I don’t know.’

Riddle 8*

Multiple choice made but no explanation given.

Riddle 9

‘Because of the it’s not type of /tʃi:p/ when it’s like when they’re going /tʃi:p/ in the store. It’s like when they’re like talking and they’re saying stuff like /tʃi:p tʃi:p tʃi:p/ (makes motion of beak opening and closing with hands).’

Riddle 10

‘I don’t know it was I don’t really get I don’t know I don’t know.’

Riddle 11

‘Cos leopards have all all got spots on them and yeah I don’t really know what to say what else.’

Riddle 12

‘Because he might have thought that the piece of cake he thought it tasted like a piece of cake as his teacher said but actually it’s a saying.’

‘And do you know what that saying means?’

‘Easy.’

Riddle 13

‘Because um in in if you play cos sometimes when you play cards there’s loads of /tʃi:təz/ and in the jungle there are /tʃi:təz/.’

Riddle 14

‘I don’t know really.’

Riddle 15

‘Because it’s called hide and seek but then even there mouses go squ-squeak so they called it hide and squeak.’

Appendix 8: Original punchline selections for individual riddles in the multiple choice task

Table 6 shows percentage number of times riddles were correctly identified in the multiple choice task.

Table 6. Original punchline selections for individual riddles in the multiple choice task

Riddle	Percentage
<p><u>Riddle 1</u> <i>Why did the robot act silly?</i> Because he had a screw loose</p>	83.3%
<p><u>Riddle 2</u> <i>Why is six afraid of seven</i> Because seven ate/eight nine</p>	15.6%
<p><u>Riddle 3</u> <i>Why couldn't the skeleton go to the ball?</i> He had no body/nobody to go with</p>	75.0%
<p><u>Riddle 4</u> <i>Why are babies good at football?</i> Because they can dribble</p>	75.5%
<p><u>Riddle 5</u> <i>How did the banana know he was ill?</i> He wasn't peeling well</p>	86.8%
<p><u>Riddle 6</u> <i>What does spiderman do when he's angry?</i> He goes up the wall</p>	78.3%
<p><u>Riddle 7</u> <i>Why did the jelly wobble?</i> Because it saw the milk shake/milkshake</p>	61.0%

<p><u>Riddle 8</u> <i>How was the blind carpenter able to see?</i> He picked up his hammer and saw</p>	46.6%
<p><u>Riddle 9</u> <i>When is the best time to buy chickens?</i> When they're going cheap/cheep</p>	68.3%
<p><u>Riddle 10</u> <i>What do whales eat for dinner?</i> Fish and ships</p>	62.1%
<p><u>Riddle 11</u> <i>Why do leopards make rubbish thieves?</i> Because they're always spotted</p>	96.7%
<p><u>Riddle 12</u> <i>Why did the schoolboy eat his homework?</i> His teacher said it was a piece of cake</p>	74.1%
<p><u>Riddle 13</u> <i>Why can't you ever win at cards in the jungle?</i> Because there are too many cheetahs/cheaters</p>	89.1%
<p><u>Riddle 14</u> <i>When are roads angry?</i> When they are cross roads/crossroads</p>	68.3%
<p><u>Riddle 15</u> <i>What's a mouse's favourite game?</i> Hide and squeak</p>	63.0%

Appendix 9: Mean scores for individual riddles in the verbal explanation task

Table 7 shows the mean score each riddle achieved in the verbal explanation task.⁶⁷

Table 7. Mean scores for individual riddles in the verbal explanation task

Riddle	Mean Explanation Score
<p><u>Riddle 1</u> <i>Why did the robot act silly?</i> Because he had a screw loose</p>	1.1
<p><u>Riddle 2</u> <i>Why is six afraid of seven</i> Because seven ate/eight nine</p>	1.4
<p><u>Riddle 3</u> <i>Why couldn't the skeleton go to the ball?</i> He had no body/nobody to go with</p>	1.4
<p><u>Riddle 4</u> <i>Why are babies good at football?</i> Because they can dribble</p>	1.6
<p><u>Riddle 5</u> <i>How did the banana know he was ill?</i> He wasn't peeling well</p>	1.5
<p><u>Riddle 6</u> <i>What does spiderman do when he's angry?</i> He goes up the wall</p>	1.2
<p><u>Riddle 7</u> <i>Why did the jelly wobble?</i> Because it saw the milk shake/milkshake</p>	1.5

⁶⁷ Each mean score had a potential maximum of 2.0.

<p><u>Riddle 8</u> <i>How was the blind carpenter able to see?</i> He picked up his hammer and saw</p>	1.2
<p><u>Riddle 9</u> <i>When is the best time to buy chickens?</i> When they're going cheap/cheep</p>	1.2
<p><u>Riddle 10</u> <i>What do whales eat for dinner?</i> Fish and ships</p>	1.5
<p><u>Riddle 11</u> <i>Why do leopards make rubbish thieves?</i> Because they're always spotted</p>	1.4
<p><u>Riddle 12</u> <i>Why did the schoolboy eat his homework?</i> His teacher said it was a piece of cake</p>	1.6
<p><u>Riddle 13</u> <i>Why can't you ever win at cards in the jungle?</i> Because there are too many cheetahs/cheaters</p>	1.7
<p><u>Riddle 14</u> <i>When are roads angry?</i> When they are cross roads/crossroads</p>	1.3
<p><u>Riddle 15</u> <i>What's a mouse's favourite game?</i> Hide and squeak</p>	1.7