

**BEYOND
PROPOSITIONALITY:
METAPHOR IN THE
EMBODIED MIND**

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Abstract

This thesis proposes a synthesis of ideas from relevance theory's conceptual and propositional approach to utterance interpretation with assumptions about the role of non-propositional elements, such as percepts, images and feelings, from embodied cognition.

It begins by considering the traditional view of metaphor (reflected in the work of Grice) as involving the transfer of properties from a metaphor vehicle to a target. Relevance theory's account of metaphoric interpretation makes critical developments to these traditional explanations. It describes the manner in which conceptual and propositional representations are accessed in the interpretation of metaphor using the notion of an ad-hoc concept construction. According to this account, the hearer of a metaphor inferentially develops the encoded concept to an occasion-specific ad-hoc concept, which resembles the speaker's thought more closely.

The thesis points out problems with the relevance-theoretic account, most notably its failure to account for intuitions about the role of non-propositional elements in the comprehension of at least some novel metaphors. It considers a range of approaches which have aimed to handle non-propositional components, including Davidson's entirely non-propositional, non-communicative approach, and suggests that the solution is to be found in adopting a more embodied view of cognition. It argues that relevance theory's communicative and cognitive approach to language use needs to be broadened to include an embodied notion of a concept in which the conceptual regions of cognition have access to the sensorimotor system, the affective sites for feeling and the physiological representations implicit in emotional responses. Accordingly, propositional (conceptual) and non-propositional representations can be activated simultaneously during the interpretation of a metaphor.

Extending the relevance-theoretic account in this way can solve some of the problems that remain with it. In particular, it helps to explain how the

comprehension of novel metaphors can sometimes lead to the derivation of so-called 'emergent properties', those elements of metaphorical meaning which emerge, but are typically associated with neither the vehicle nor the target concept.

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Declaration

I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.

Signed: Alex Golding

Date: 31st May 2016.

Chapter one: Introduction: aims, aesthetics and an overview

There is very good reason for anyone concerned with the role of inference in communication to assume that what is communicated is propositional: it is relatively easy to say what propositions are, and how inference might operate over propositions. No one has any clear idea how inference might operate over non-propositional objects: say, over images, impressions or emotions ... too bad if much of what is communicated does not fit the propositional mould. (Sperber and Wilson, 1995, p. 57)

1.0 Aims

In the above quote, Sperber and Wilson (1995) articulate a particular view of the contribution non-propositional information might make (or not make) to inferential communication. The quote is not to be taken to suggest that Sperber and Wilson (1986/1995) believe an account that makes use of non-propositional information is an impossibility. However, it does seem that relevance theory is committed to a view under which inferential processes act on propositions.

This thesis sets out to question this view. It seeks to demonstrate that non-propositional information, in particular the perceptual (including imagistic), affective (feelings/emotions) and bodily aspects that arise during communication, play a crucial role in the hearer arriving at speaker's meaning. Any account of communication and cognition must incorporate both propositional and non-propositional information. As a result, a key objective is to develop an account of how we deal with the non-propositional elements evoked during novel metaphoric utterance comprehension. This will be achieved by combining ideas from relevance theory with ideas from embodied cognition.

On the one hand, relevance theory provides a rich propositional account of the inferential procedures in utterance interpretation and the specific constraints on these processes, but seems unable to deal with the non-propositional aspects of meaning (Sperber and Wilson, 1986/1995, 2008). On the other, work in embodied cognition (Barsalou, 1999, 2009; Damasio, 2000; Damasio *et al.*, 2004; Zwaan, 2015; Richter and Zwaan, 2010) provides a comprehensive account of non-propositional information, yet lacks a coherent view of the inferential processes

involved in utterance understanding. By reconciling aspects of each view, we are better placed to develop an account of language interpretation.

This thesis adopts aspects of Davidson's (1978) wholly non-propositional, non-communicative approach to metaphor in which a novel metaphor gives the hearer access to mental imagery. It considers experimental evidence, which suggests that 'metaphor processing arises from and is grounded in sensory and perceptual experience, thereby constituting a kind of 'embodied cognition' (Johnson¹, in submission, pp. 9-10). Davidsonian (1978) ideas are therefore extended to work from the literature on embodied cognition (Barsalou, 1999, 2009), which includes percepts (visual, aural, haptic), motor representations, feelings and physiological emotional responses (Damasio, 1994, 2000), and these are argued to play a role in metaphoric interpretation (Johnson, in submission).

This thesis regards cognition as more than the manipulation of abstract representations. It is not only about how conceptual representations enable the activation of logical and encyclopaedic properties, but also conscious mental imagery, sounds, feelings and emotions. The claim is that if relevance theory adopted a view in which concepts could access the sensorimotor system, affective 'sites' and Davidsonian (1978) imagery, the theory would be improved. It would enable propositional (conceptual) and non-propositional representations to be activated simultaneously as part of the comprehension procedure of novel metaphoric utterances.

Research in lexical pragmatics demonstrates that word meanings are regularly pragmatically modulated so that they differ from the encoded concept in cognition (Sperber and Wilson, 1986/1995, 2012; Carston, 2002; Wilson and Carston, 2007). Metaphorical language uses are not considered different or special since they undergo the same inferential procedures (Sperber and Wilson, 1986/1995, 2012). At the same time, metaphors differ from other language uses in that their inherent creativity has the potential to evoke substantial non-

¹ It should be pointed out that Johnson's (in submission) work here relates to metaphor production. This thesis claims that it provides evidence that non-propositional elements are represented in the mind during processing.

propositional representations during interpretation. For this reason, I have taken them as a starting point in developing an account of the role of non-propositional information in this thesis. A long-term goal of this research is to put non-propositional and propositional information on an equal footing in explanations of cognition.

What is metaphor?

In the traditional approach, metaphor is understood as involving the transfer of properties from a metaphor vehicle to a target. Etymologically speaking, the word metaphor derives from the Greek word μεταφορά, meaning ‘transfer’, and via the subsequent Latin word metaphora, which translates as ‘carrying over’ (Liddell and Scott, 1940). Traditional accounts of metaphoric language use view literality as taking precedence. According to the view endorsed by Grice (1975), the literal proposition is accessed first, but this would lead to a flouting of the Maxim of Truthfulness (part of the Maxim of Quality), guiding the hearer to a search for a related implicature.

Recent discussion relates metaphor to the more general cognitive ability humans have to make connections between different mental domains. Ramachandran (2007) suggests that the capacity to transfer elements from one mental structure onto another, known as cross-modal abstraction, might have originated with our early ancestors as a means of exploring the external environment:

When reaching for, say, an oblique branch its (our arboreal primates’) brain would have to match the visual input from the retinae with a sequence of entirely different proprioceptive signals being processed in separate brain areas. Despite being superficially dissimilar both inputs do have the common denominator of, in this case, “obliqueness” and it is this that the mirror neuron system is able to extract. (Ramachandran, 2007, p. 1166)

Ramachandran (2007) describes the situation in which our primate ancestors are swinging from branch to branch. His suggestion is that it is the ‘obliqueness’ that enables how these ancestors matched the shape of their arm to fit the particular shape of the branch.

Metaphor, on this view, is about the juxtaposition of two or more concepts not normally brought together. Focussing on the subjective experience involved, the unfamiliar juxtaposition seems to evoke more non-propositional representations during metaphoric interpretation. In other words, addressees have the experience of hearing a sound, or feeling a certain texture whilst processing a metaphor. Johnson's (in submission, p. 24) studies evidence 'the significance of sensory or bodily experience in metaphoric processing'. While her research relates to metaphor production, it argues that non-propositional elements are integral to the mental processes for metaphoric language uses. Through interviews, her participants claimed that they had access to 'visual, auditory, tactile and motor/kinaesthetic modalities', which was supported through electroencephalogram (EEG) data of the electrical activity in the subject's brains.

Consider the following, from Plath:

- 1) 'The faces have no features. They are bald...' (Plath, 1981, p. 178)

This metaphor brings together the encoded concepts FACE² and BALD. It is an unfamiliar juxtaposition of concepts in which the vehicle concept, BALD, is employed to understand the target concept, FACE, in more depth. These concepts are developed by hearers/readers to more closely match the speaker's thought. Sperber and Wilson (2012, p. 122) claim that creative novel metaphors such as this do not communicate anything explicitly since they are 'difficult or impossible to define'. Instead, the poetic effects are inferentially derived as an array of weakly implicated propositions, none of which are strongly implicated:

² Small capitals indicate a concept.

- 2) a) X's face has no trace of a personality.
- b) X's face does not convey any emotion.
- c) X's face shows little signs of a humanity.
- d) It is hard to read X's face.

The relevance-theoretic account suggests that what feels like vague or impressionistic communication can be understood by assuming that an utterance gives some inconclusive evidence for a range of assumptions, each of which has propositional content. It seems, then, that a propositional account can work for the example in (1).

However, a question that arises is how elements such as 'has no trace of a personality', 'does not convey any emotion', 'shows little signs of a humanity' and 'is hard to read' arise during interpretation. Where do these propositional chunks of information come from? Sperber & Wilson (1986/1995, 2012) and Carston (2002, 2010) suggests that such information comes from world knowledge stores, attached to the encoded concept. However, we do not normally associate BALD with 'no trace of a personality' or 'not conveying emotion'. These types of properties present in the implicated conclusions in (2), but which are not found in the metaphor vehicle concept, BALD, are called 'emergent properties', a term first coined by the philosopher Lewes (1875) and used since then to refer to any property that seems to emerge without adequate explanation.

How might these properties be accounted for? Let's say that a mental image of BALD is activated in which the visualisation of 'a flat bare surface of a skull' acts as a constituent of thought so that it enters into the inferential procedures, such that something that is bare has no features or emotions. The bareness of the mental image is transferred over to FACE, so that we can envisage a face that shows little signs of anything of what it means to be human. Effectively, we are synthesising aspects of Sperber and Wilson's (1986/1995, 2012) conceptual and propositional approach with embodied cognition (Barsalou, 1999, 2009) and

Davidson's (1978) imagistic account. The implicated conclusion would, thus, include a mixture of propositional and non-propositional representations:

3) X's face shows little signs of personality, emotion or humanity.

(mental image of bare skull, possibly a feeling or sense of bareness from the mental image)

Of course, interpretation will vary across addressees and the context in which a metaphor is heard or read. In fact, just being told that a few lines are written by a poet, rather than a computer-generated programme, instigates the investment of considerably more mental effort in the search for a relevant meaning (Gibbs, Kushner and Mills, 1991). As such, there may be occasions in which a creative exploration of our cognitive resources is simply unavoidable while, at other times, it feels a more laboured venture.

The principal claim in this thesis is that the mental processes involved in novel metaphors cannot be fully understood through an account which relies on propositions alone. If metaphor is a transfer from one conceptual domain to another, but the properties that get transferred are not found in the metaphor vehicle's associated encyclopaedic information in its propositional format or can be accounted for through inferential procedures (Carston, 2002), the relevance-theoretic approach needs to be modified: we need to look *beyond* propositionality. The example in (1) and (3) highlights the possibility that propositional and non-propositional information can be combined, suggesting a new framework within which particular concerns of the comprehension of metaphorical uses of language, including the emergent property issue, might be addressed.

1.2 Aesthetic experience

Another focus of this thesis is the subjective experience obtained from the reading or hearing of a metaphor, an aesthetic experience in which it is possible to activate consciously a mental image or evoke a particular felt-sense through the coalescing of concepts not normally brought together in cognition. Freud (1919)

talks about the uncanny, which, for him, results from the ‘unheimlich’ (unfamiliar) moving into the ‘heimisch’ (familiar) or vice versa. An example would be a doll, a familiar, benign object, suddenly being given an animacy, a presence, not normally associated with dolls. What was once familiar now seems strange. In the same way that the once familiar use of <face>³, in Plath’s (1981) example above, becomes unfamiliar: a face that is bald, with no features or emotions. It causes us to perceive and feel the world anew.

As Housman states:

Experience has taught me, when I am shaving of a morning, to keep watch over my thoughts, because, if a line of poetry strays into my memory, my skin bristles so that the razor ceases to act. (Housman, cited in Warhol, 2003, p. ix)

In this quote, Housman highlights how certain poetic effects penetrate right through us; they affect us not only cognitively, but *physically*. It is possible that my ‘skin’ could just as easily ‘bristle’ recalling a particularly beautiful sunset and feeling the traces of remembered joy as it tingles through my cells to the surface of my skin. This thesis proposes to account for the aesthetic ‘feeling’ of understanding metaphors as something that arises during intentional communication. Moreover, the combination of non-propositional and propositional representations that arise through the juxtaposition of unfamiliar and familiar concepts gives us a certain pleasure: we get a cognitive kick out of it. (Giora, *et al.*, 2015).

1.3 Overview of the chapters

Chapter two demonstrates how the relevance-theoretic model is effective in terms of providing an understanding of the propositional (conceptual) representations involved in metaphoric interpretation, but is unable to account for non-propositional entities (Sperber and Wilson, 1986/1995, 2012). This thesis proposes that this inability is a weakness, and that we need to move beyond propositionality. This chapter also shows how metaphor can be an effective

³ <...> denotes a word.

medium for the expression of affective (non-propositional) representations, such as feelings. As we shall see, Damasio (1994, 2000) defines feelings as the juxtaposition of a body state reaction (emotion) with the object (thought or perception) that caused it. Feelings have a cognitive status, and so are able to bridge the gap between our rational conceptual minds and our bodies. More significantly, feelings have the potential to interact with our conceptual thought processes.

Certain relevance theorists, such as Wilson and Carston (2008) and Rubio-Fernández (2013), claim to account for the existence of ‘emergent properties’ in metaphoric interpretation, those properties that emerge which are associated with neither the ‘vehicle’ nor the ‘target’ concept. This thesis suggests that to fully comprehend what a speaker of a metaphorical utterance means, it is necessary for the inferential operations that take place during comprehension to involve non-propositional representations. Pilkington (2000) attempts to move beyond a propositional approach, but that his account suggests that non-propositional components are accessed in either a belief or memory format, and so not directly.

Chapter three argues that an account of metaphoric utterance interpretation requires an approach that combines propositional and non-propositional representations simultaneously. The key objective is to understand why propositions have taken precedence over non-propositional entities. Certain relevance theorists offer interesting proposals about non-propositional entities (Wharton, 2000, 2009; Wilson, 2011b), but since these entities are not representational, they are unable to contribute to a propositional representation about the speaker’s meaning.

This chapter also analyses Fodor’s (1975) and relevance theory’s (Sperber and Wilson, 1986/1995) propositional accounts of language use in understanding why non-propositional elements play a secondary role in utterance interpretation. It suggests that by loosening Fodor’s (1983) definition of a module in the perceptual region of cognition, it would allow for a two-way interaction between conception and perception. This parallel view of cognition enables non-propositional elements to contribute to our representational thought processes.

The central claim in chapter four is that we can think not only in concepts, but also in images and other non-propositional elements. It begins with an account of Davidson's (1978) imagistic approach to metaphor. For him, literal sentences alter our beliefs⁴ about the world whereas metaphors only intimate non-propositional entities (Davidson, 2006, p. 218). By contrast, this thesis argues that metaphoric language uses express a proposition, containing non-propositional elements, which can be judged for its truth or falsity. This chapter argues, hence, that Davidson's (1978) approach should be merged with aspects of the relevance-theoretic ad-hoc concept account of metaphor (Carston, 2002).

In contrast to Dennett (1981) and Pylyshyn (1981), this chapter claims that mental imagery should not be regarded as mere epiphenomenon. Instead, it should have its own *sui generis* status in cognition, as McGinn (2004) claims. Images are argued in this thesis to be constructed from previously perceived visual percepts, which can contribute to a mental representation. Such a view requires a parallel model of cognition in which mental images can contribute to the proposition expressed by an utterance. The new framework offered in this account extends Davidson's (1978) ideas about images to embodied cognition (Barsalou, 1999, 2009, 2012; Richter and Zwaan, 2010; Damasio, 1994, 2000) in which non-propositional elements can also include: sensorimotor, affective and physiological representations.

Chapter five explicates how the account provided in this thesis unites aspects of Barsalou's (1999, 2009) embodied model of cognition (the perceptual symbol system) with relevance theory's inferential account of communication and cognition. As part of this aim, it combines Fodor's (1998) theory about conceptual acquisition with Barsalou's (1999, p. 584) claims about how the perceptual input of an object from the world *resembles* the concept that represents it. This is because, for him, mental concepts are partially extracted from the

⁴ This thesis argues that where Davidson (1978) refers to beliefs, on a relevance-theoretic interpretation, he means conceptual thought.

original perception of them, so that they give access to these non-propositional entities, such as sensorimotor representations.

This chapter also proposes a synthesis of these relations of ‘resemblance’ to the relevance-theoretic notion of ‘interpretative resemblance’. For Carston (2002), the ad-hoc concept approach to language use assumes that the encoded concept resembles the ad-hoc one in that they share certain logical and encyclopaedic properties. This thesis argues that the notion of interpretative resemblance could be extended to include non-propositional entities, as Barsalou (1999, 2009) suggests. By doing so, it would enable the proposition expressed to include non-propositional elements so that it more closely matches the speaker’s thought. To support the inclusion of non-propositional elements, this chapter examines experimental research from embodied cognition which provides evidence for the perceptual symbol system.

Lastly, chapter six addresses the consequences of proposing a two-way interaction between conception and perception since it also suggests that pragmatics and semantics are processed in parallel. It argues that previous attempts to explain a parallel model in the embodied cognition and philosophy of language literature have not been successful. However, this chapter points to certain persuasive experimental evidence that suggests, at the very least, that word recognition is a parallel process. Although the evidence is inconclusive and cannot confirm a truly parallel model of cognition, it indicates the need for further research.

The chapter ends by presenting evidence that justifies the relevance-theoretic model of a trade-off of effort and cognitive effects. The aim of which is to show how our utterance processing can lead to the alteration of our beliefs. Giora *et al.* (2015) extend the notion of effects into their theory about optimal innovation. It explains the pleasure we derive in juxtaposing the familiar and the novel, and thus our motivation for the aesthetic experience involved in metaphoric processing. In the next chapter, I turn to relevance theory and the analysis of metaphor.

Chapter two: Relevance theory, poetic effects and beyond

A pragmatic-based account of poetic effects can lead to a much clearer understanding of what constitutes a poetic thought. But not all of what is important to such an understanding can be dealt with [in the relevance-theoretic research programme outlined here] ... Although cognitive pragmatics is now in a position to provide a substantive theory of literariness, it is important to be aware of the limits on how far it can go. There is a theory of literariness based on pragmatic theory – and there is a beyond. (Pilkington, 2000, p. 192)

2.0 Introduction

Of all the mental phenomena elucidated by biologists, neurologists, psychologists and linguists, feelings are among the least well understood. Science, it appears, can explicate to some extent our visual, auditory, olfactory and perceptual linguistic abilities. It can also make predictions about the way in which the mind learns or provide an analysis of emotional reactions. However, until the late twentieth century, very little had been said about feelings. They are often ‘treated synonymously’ with emotion, linked to bodily functions and to thought in some way (Burke and Dell, 1989, p. 69). They are seldom viewed as functional elements of thought, with the capacity to interact with other higher cognitive processes.

The aim of this chapter is to outline the way in which metaphor has been accounted for within relevance-theory. I want to show there is a need to go beyond the current approach, which cannot explicate non-propositional aspects of metaphor comprehension. Both Sperber and Wilson’s (1986/1995) and Carston’s (2002) accounts characterise creative metaphors as involving a process whereby a wide range of assumptions, derived from the encyclopaedic entries for concepts, are made marginally more salient to the hearer. More specifically, the notion of ‘weak implicature’, first presented in Sperber and Wilson (1986/1995) and developed by Carston’s (2002, 2010a, 2010b) work on ‘ad-hoc’ concepts, provides concrete analyses in terms of propositional conceptual representations. The mental representations are analogous to those described by Fodor (1983) in his central systems of rational thought processes.

One of the aims of this approach is to consider how far intuitions of poeticness/affective responses can be dealt with by these accounts. The proposal here is that these ‘weak implicature’ and ‘ad-hoc’ approaches cannot fully account for our intuitions about these non-propositional aspects raised during metaphoric interpretation (and other linguistic devices). Hence, this thesis proposes a new framework in which certain aspects of novel metaphoric interpretation can effectively communicate propositional and non-propositional representations, such as feelings and sensations, directly. In this chapter, it is illustrated through the use of metaphors in poetry and literary works.

For Pilkington (2000, p. 11), comprehending poetic metaphor requires an understanding of how the ‘poetic thoughts’ communicated by such expressions differ to the mental representations expressed by other forms of communication. Pilkington (2000) works within the relevance-theoretic framework, which he broadens to include an affective component. He explores how relevance theory’s notion of concepts might be extended to incorporate an entry for phenomenological states, thereby integrating non-propositional effects (Pilkington, 2000). However, the phenomenological entry only represents entities in a conceptual format or, alternatively, as a remembered emotion. This precludes the possibility that they might directly give rise to affective representations.

Section 2.1 examines the relevance-theoretic approach to verbal communication (Sperber and Wilson, 1986/1995). Section 2.2 follows this by investigating how metaphors are processed and understood within relevance theory’s original weak implicature account (Sperber and Wilson, 1986/1995). Section 2.3 discusses Carston’s (2002) ad-hoc concept account of metaphor, and looks into certain difficulties their theories face, namely the emergent property issue. Section 2.4 explores Damasio’s (1994, 2000) distinction between feelings and emotions by looking into how they work and where they reside. Lastly, section 2.5 looks beyond a conceptual and propositional explanation by providing an analysis of Pilkington’s (2000) alternative phenomenological approach to metaphor and its connection to feelings.

2.1 The relevance-theoretic account of communication

Before moving onto the relevance-theoretic account of metaphoric interpretation, this section aims to describe their approach to verbal communication to understand the way in which it is focussed on propositional and conceptual mental representations. Section 2.1.1 examines the key principles behind their theory of utterance interpretation while section 2.1.2 details how their comprehension procedure works in order to outline their emphasis on inferential communication, and the different levels of propositional meaning.

2.1.1 The Cognitive and Communicative Principles of Relevance

Sperber and Wilson's (1986/1995) relevance theory is an inferential model of communication in which the intended meaning is not wholly provided by the linguistically encoded meaning, but inferred on the basis of 'ostensive' utterances. Utterances create expectations of relevance, and come with a presumption that they are relevant enough to be worth processing. (Sperber and Wilson, 1986/1995). The audience is responsible for constructing psychological contextual assumptions as to the intended meaning, retrieved from their personal and cultural encyclopaedic knowledge found in memory, perception and inferential procedures (Sperber and Wilson, 1986/1995).

An input is defined as relevant to the extent that in its processing context it yields enough positive cognitive effects to be worth the processing effort:

Relevance of an input to an individual

- a. Other things being equal, the greater the positive cognitive effects achieved by processing an input, the greater the relevance of the input to the individual at that time.

- b. Other things being equal, the greater the processing effort expended, the lower the relevance of the input to the individual at that time. (Sperber and Wilson, 2012, p. 280)

A positive cognitive effect is achieved through the interaction of new with old information and a subsequent change in the way an individual represents the world. The new input gains relevance by interacting with previously held

assumptions and evoking contextual effects, such as strengthening, contradicting or combining with them to yield an implicated conclusion (Sperber and Wilson, 1986/1995). As Sperber and Wilson state:

In an intuitive sense, assumptions derived or retrieved from encyclopaedic entries are old information, whereas assumptions derived from perception or linguistic decoding, i.e. from input systems, are newly presented information, and become old in the course of being processed. (Sperber & Wilson, 1995, p. 107)

An example is:

- 4) 'Courtney's charisma leapt off the airwaves and into your lap.'
(Ronson, 2009, p. 113)

The new input is the sentence in (4), which interacts with previously held contextual assumptions from a hearer/reader's own resources and from the previous context in which the sentence was uttered, as in (5):

- 5) a) People with charisma have a powerful effect on other people
b) Courtney Brown was an ex psychic spy who wanted to persuade the public of his powers

Given the assumptions in (5), the information in (4) would yield the implicated conclusion in (6):

- 6) Courtney's charisma had a powerful effect on the listeners of the radio station he was on.

Relevance is characterised in terms of a trade-off between cognitive effects and processing effort. Moreover, certain inputs may be classified in relation to the degrees of relevance they exhibit:

When similar amounts of effort are required by two alternative inputs, the effect factor is decisive in determining degrees of relevance, and when similar amounts of effect are achievable, the effort factor is decisive. (Sperber and Wilson, 2012, p. 280)

Given utterances that require a similar amount of processing effort, it is the number of cognitive effects which determine how relevant such utterances are. To illustrate, Sperber and Wilson provide the following example:

- 7) a) ‘The next train to Bordeaux is at 3.24 p.m.
- b) The next train to Bordeaux is after 3 p.m.
- c) The next train to Bordeaux is at 36 minutes before 4 p.m.’
- (Sperber and Wilson, 2012, p.280)

In the context of trying to develop an accurate travel schedule, (7a) is more relevant than (7b) in terms of cognitive effects gained. The reason is that the hearer can derive all the same implicated conclusions as from (7b), and more since it will enable the scheduling to be more precise. (7a) is more relevant than (7c) because, despite the fact they are logically equivalent, (7c) requires more effort to determine the same implicated conclusion.

The human cognitive system is automatically set up to attend to relevant information in the environment. Our perceptual mechanisms are geared to monitor and select relevant stimuli, including utterances, from the environment. Memory is programmed to select from its vast databases only relevant assumptions that would enable comprehension. According to the Cognitive Principle of Relevance, ‘human cognition tends to be geared to the maximisation of relevance’ (Sperber and Wilson, 2002, p. 6).

It follows from this, and the Communicative Principle of Relevance, that utterances come with a presumption that they are relevant enough to be worth processing. Stimuli that come with this guarantee are called ‘ostensive’ stimuli and form the basis of ‘ostensive- inferential’ communication: communication in which a speaker ostensibly provides an addressee with evidence enabling them to infer the communicator's meaning.

Ostensive stimuli supply the addressee with the knowledge that the communicator intends to inform them of something. Once this informative intention is recognised it is said to be mutually manifest to both speaker and hearer:

A proposition is manifest to an individual at a given time to the extent that this individual is disposed to draw (non-hypothetical) inferences from it. (Sperber and Wilson, 2014, p. 18)

An assumption may be manifest to different degrees. The more salient a manifest assumption is, and hence the more likely to be mentally represented, the more strongly manifest it is. For instance, my accidentally knocking over a glass of water (evidence) does not make mutually manifest any communicative or informative intention. However, should I knock the glass over because I am angry, and intend for you to recognise this, it would count as an ostensive stimulus. This is because my intention to inform you of my anger, and that you should recognise this intention has been made mutually manifest to both addressee and communicator. The principle, therefore, captures a special property of these stimuli, namely that they come with a guarantee of relevance, which renders them distinct from other non-communicative phenomena in the environment:

Every utterance conveys a presumption of its own optimal relevance. (Sperber and Wilson, 2012, p. 282)

Optimal relevance is described as:

An utterance is optimally relevant to the hearer just in case:

- a. It is relevant enough to be worth the hearer's processing effort;
- b. It is the most relevant one compatible with the speaker's abilities and preferences. (Sperber and Wilson, 2012, p. 282)

It follows, therefore, that the utterance should be worth the audience's attention (that is, have a range of cognitive effects for the hearer) and will not demand any gratuitous effort on part of the hearer.

Moreover, the Communicative Principle of Relevance conjoins with the notion of optimal relevance to license a specific comprehension procedure. The hearer takes the linguistically encoded sentence meaning and adheres to the process, as outlined below:

a. Follow a path of least effort in constructing and testing interpretative hypotheses (regarding disambiguation, reference resolutions, implicatures, etc.).

b. Stop when your expectations of relevance are satisfied. (Sperber and Wilson, 2002, p. 24).

Nonetheless, expectations vary according to context. Relevance theory claims, for example, that certain uses of language, such as those that have poetic effects, demand more processing effort, which requires being offset by cognitive effects if relevance is to be achieved. The claim, in this thesis, is that although novel metaphors may require more mental effort and achieve more effects, a theory of communication and cognition that centres solely on propositional forms misses the extent to which language can enable us to feel the world as opposed to only conceptualising it.

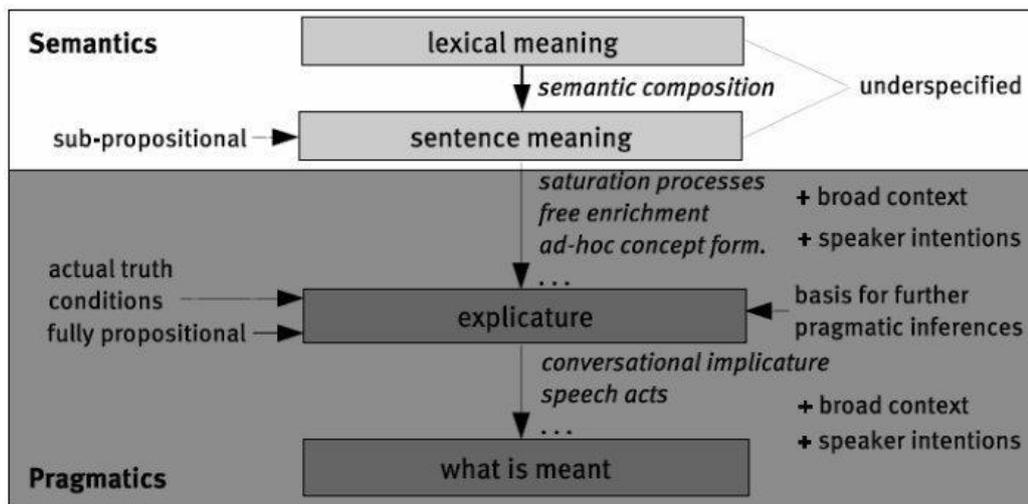
2.1.2 From decoding to inferring

Linguistic processing begins with the translation of the perceptual sound of a word into a conceptual format⁵ (Sperber & Wilson, 1995, 2008; Carston, 2002). The language faculty supplies this schematic decoded sentence, the logical form, to the domain-specific comprehension module (see ‘sentence meaning’ in figure one below). At this point, it is sub-propositional until it has undergone certain inferential procedures to flesh out the proposition the speaker has expressed. Relevance theory is an inferential approach to pragmatics with its roots in propositional and conceptual views of cognition. An utterance communicates a proposition, which constitutes a mental representation in conceptual format, and this expresses a thought. Verbal communication provides two levels of propositional content: the explicature and implicature (see ‘explicature’ and ‘what

⁵ This is not strictly true since many non-truth conditional expressions are procedural; that is, rather than encoding a concept, they guide the hearer towards an implicated conclusion.

is meant' in figure one below) (Sperber and Wilson, 1986/1995, 2012; Carston, 2002, 2010; Carston and Hall, 2012). In line with the traditional approaches, the former has truth conditional content, but both propositions can be truth evaluable: to know the conditions under which the utterance would be true.

Figure one: Sub-propositional and Propositional forms



Source: (Borjesson, 2016)

The diagram above differentiates between the decoding processes at the sentence level to the inferential or pragmatic processes that operate over the sentence in the production of the speaker meaning in the mind of the hearer: a propositional form.

To illustrate the relevance-theoretic emphasis on propositional and conceptual representations, an example is taken from an exchange in Ronson's (2009) book 'Men Who Stare at Goats'. The context in which example (8) is processed is the US military's use of songs, in particular 'Barney', from the eponymous children's television programme, as a form of torture, applied to prisoners in enclosed shipping containers in Iraq. Journalist Adam Piore was the first person to report the horrors of this story, and it soon became headline news in the United States:

8) A: ‘How did they report it?’ asks Jon Ronson

B: ‘As humorous,’ replies Adam Piore (Ronson, 2009, p. 154)

The perceptual input of B’s utterance would be decoded by A into the following:

9) AS HUMOROUS.

The decoded sentence is delivered to the domain-specific comprehension module in the conceptual part of human cognition. According to Carston (2006, p. 4), as it enters the pragmatics module, it is ‘embedded in a description of the ostensive act’ in which the addressee of (9) expects that the speaker is being optimally relevant, as part of the Communicative Principle of Relevance. The logical form is fleshed out into an explicature through a process of non-demonstrative inference, such that:

An assumption communicated by an utterance *U* is *explicit* if and only if it is a development of the logical form encoded by *U*. (Sperber and Wilson, 1995, p. 182)

Therefore, the explicature for (9) would be fleshed out into (10) below, which also has certain ‘ellipses to interpret’ (Wilson and Sperber, 2002, p. 258):

10) The media in the United States reported the Barney story as
HUMOROUS.

The encoded concept HUMOROUS is inferentially enriched (see section 2.3 for a fuller discussion) to mean a particular type of humorous. The (new) linguistic input in (8), developed into (9) and (10), is processed against previous (old) contextual assumptions:

- 11) a) The US media might be influenced the US army and the US government.
- b) The US army might want to diminish the horrors of their war in Iraq and the torturing of prisoners.
- c) If torture is presented as humorous, it is possible there is a cover up going on.

The assumptions in (11) might be highly accessible to the deductive device (or domain-specific comprehension module) if they satisfy the property of relevance in a way that yields sufficient cognitive effects for no gratuitous mental effort. Contextual implication is the principal effect, constrained by relevance and determined during the course of communication (Sperber & Wilson, 1995):

- 12) Contextual implication: The media reported the Barney story as humorous since they may want to diminish the horrors of their war in Iraq and the torturing of prisoners.

According to relevance theory, the addressee A derives the explicature in (10), contextual assumptions in (11) and the implicature in (12) in a parallel manner. The explicature and implicature are propositional forms, which express the thought attributed to B. A is able to represent B's thought as describing a particular state of affairs in the world. For the utterance to be true, A would have to imagine a possible or actual world (from their own resources) in which the US media and US army may behave in ways that defy morality. The important point is that the thought is represented in a propositional and conceptual format, and this is what is mapped against the world in ascertaining the truth conditions of the utterance.

2.2 The relevance-theoretic account of metaphor

2.2.1 Metaphor as an example of loose use

Within relevance theory, the interpretation of both literal and non-literal language depends upon the fleshing out of the proposition expressed by an utterance. The processes that underlie interpretation take part exclusively in the conceptual part of human cognition. Sperber and Wilson's (1986/1995) original account see metaphor as constructing an array of weak implicatures, yet this thesis argues it is unable to fully account for 'emergent properties' and the non-propositional aspect of novel metaphor.

According to Sperber and Wilson (1986/1995), metaphor comes under the more general heading of loose use, which describes the way in which a word is used with a broader denotation than its encoded conceptual counterpart. Put simply, it describes a process of conceptual adjustment. On Sperber and Wilson's (1986/1995) original account, they posited the continuity hypothesis in which all instances of loose use: literal (the limiting case), approximation, hyperbole and metaphor undergo the same inferential mechanisms and procedures, implying no qualitative differences between them. For instance, a hyperbolic use is:

- 13) 'My morning jog around the park was a marathon.' (Rubio-Fernández, Wearing and Carston, 2015, p. 47)

The intended use of 'marathon' in (13) is denotatively wider than the encoded concept MARATHON since the speaker does not mean that they ran twenty-six miles, but that it was an extremely long run and they felt exhausted afterwards. Recent work by Rubio-Fernández, Wearing and Carston (2015) challenges aspects of the relevance-theoretic continuity hypothesis. Their psycholinguistic experiments showed that although loose uses follow the same inferential procedure, hyperbole demonstrates a quantitative shift such that the derived meaning 'long distance' has changed by a certain degree from MARATHON. The degree here relates to length, from a hugely long distance to a relatively long one. Metaphor, by contrast, is the result of a qualitative shift since it brings

‘peripheral’ features to the foreground (Rubio-Fernández, Wearing and Carston, 2015, p. 50). A metaphorical example of a loosely used concept is:

- 14) ‘Writing my thesis is a marathon.’ (Rubio-Fernández, Wearing and Carston, 2015, p. 62)

According to these authors, the lexically encoded concept MARATHON is loosely used in (14), but it is not the result of a quantitative shift; rather, its central meaning, ‘an organised run equating to a distance of around twenty-six miles’, is dropped from the interpretation, and the peripheral feature ‘mental strength’ is given prominence (Rubio-Fernández, Wearing and Carston, 2015, p. 62). Their results are noteworthy, and although this thesis favours the continuity hypothesis in that all loosely used concepts follow the same interpretative procedure, the results do support a call for a weaker version of the original continuity view.

Sperber and Wilson’s (1986/1995) original account claimed that metaphors, that are loosely used, gain relevance by constructing either one or two strong implicatures or a range of indeterminate implicatures. Implicatures, as already established, are a type of proposition made manifest during the course of communication (Sperber and Wilson, 1986/1995). The claim is that they are strongly manifest for familiar uses of metaphor (see (15) below), or they can be made weakly manifest for novel instances. Utterances that contain strong or fully determinate implicatures guide the hearer unmistakably to the intended premise or conclusion, attributed to the speaker (Sperber and Wilson, 1986/1995). The weak implicature account, applicable to creative metaphors, demonstrates the way the hearer or reader takes more responsibility in the recovery of meaning for vague communication. Vague communication involves an intention to bring about only a slight increase in the manifestness of a wide range of assumptions that are weakly manifest in the cognitive environments of both communicator and audience.

An extract of a dialogue explicates an example of indirect language use in which an implicature is made strongly manifest:

15) A: 'At times there are angels that don't look benevolent, aren't there?

B: Whoever feels certain to be on the side of goodness has no reason to fear them.' (Manuel Puig, 2000, p. 7)

The question posed in the first line by A is not directly answered by the explicit content of B's utterance. This is because the tag question in A's utterance implies that he/she is looking for B to either agree or confirm their ideas, possibly by a yes or no answer. On Sperber and Wilson's (1986/1995) original account, if the explicit content alone does not provide access to a mental representation that gains relevance, the hearer would search for an implicature to satisfy their expectations of relevance. In the process, they would construct contextual assumptions against which interpretation occurs:

16) Those who are bad may have some reason to fear angels.

The contextual assumption alongside the explicit content could lead to the strongly and singly implicated conclusion below as to the intended meaning of speaker B's utterance.

17) The speaker of A may not be good and may have reason to believe that some angels are not benevolent.

The above proposition may constitute the first strongly implicated conclusion that comes to mind and, therefore, must be the satisfactory one, according to relevance theory (Sperber and Wilson, 1986/1995). The extra effort involved in the search for the relevance of an indirect answer is clearly offset by extra effects. This is shown here to be the particular negative thought the speaker of B has about A. It is possible, however, that speaker A may elicit further weaker implicatures as to speaker B's communicative intention:

- 18) a) Anyone who may be bad may fear angels.
- b) Anyone who may be good has no reason to fear angels.
- c) General negative beliefs about the character of A.
- d) A belief about A's deep religious beliefs (although B may not be) thus expressing the desire to insult A or frighten A in some way.

The strongly implicated conclusion is essential in order to derive the satisfactory interpretation of the utterance itself (Sperber and Wilson, 1986/1995). In contrast, the weakly implicated set may facilitate the construction of the relevant interpretation, but may not be entirely necessary (Sperber and Wilson, 1986/1995). The wide range of weak implicatures given may all have relevance in some way, but not individually. The differentiation between weak and strong implicatures sheds some light on the relevance-theoretic understanding of poetic effects in creative metaphors. Within their perspective, a poetic use of a metaphor gains relevance only by leading its audience to access a wide array of weak implicatures.

To illustrate the way utterances pertaining to poetic effects convey slight variances in meaning for different hearers through communicating a range of weak implicatures, consider the following from Neruda:

- 19) 'And it was at that age ... Poetry arrived
in search of me.' (Neruda, 1995, p. 13)

In accordance with the relevance-theoretic comprehension procedure (Sperber and Wilson, 1986/1995), no strong implicature is retrieved due to the loosely used concept POETRY. This is because the thought behind this poetic use is vague and indefinite, so it is impossible to spell out in a single proposition. Accordingly, the hearer accesses a wide array of weak implicatures instead, as shown below:

- 20) a) Understanding what the essence of poetry might be.
- b) A certain piece of poetry came to mind.
- c) A particular feeling associated to poetry came to me.
- d) The conceptual benefits of poetry seemed clearer.
- e) Understanding that poetry can be conceived as an imprint left behind on everyday objects.
- f) Understanding poetry as an aspect of a divine force.
- g) Understanding poetry as utilised as a social or political commentary.

The weak implicature account captures the notion of indeterminacy in that each hearer or reader may access a different portion of the wide array shown above. Moreover, it could be said that the indeterminacy of poetry results from the fact that the hearer or reader cannot be sure which implicated conclusions can be attributed to the speaker and which to themselves (Sperber and Wilson, 1986/1995). The weak implicature account for poetic uses of language is explicated in the following: ‘none of these implicatures is individually required for the utterance to make sense, but, on the other hand, without some such implicature, it will make no sense at all’ (Sperber and Wilson, 2002, p. 20). In this way, Sperber and Wilson’s (1986/1995) approach assumes that conceptual propositions are necessary for the comprehension of metaphor, no matter how weak or indeterminate they are.

Within a relevance-theoretic account, vague communication comes at a risk (Sperber and Wilson, 1986/1995). The wider the range of assumptions accessed, the vaguer the communication and the greater the risk. There exists a continuum between determinate and indeterminate meanings (Sperber and Wilson, 1986/1995). However, it must be recognised that merely producing an indirect

answer to a question does not entail a poetic or creative use of language. Indirect answers would display, in addition to a strongly implicated answer, an array of weak implicatures that are characteristic of poetic effects in creative metaphors. Moreover, for Sperber and Wilson (1986/1995), the truly poetic uses of metaphor do not usually access one strong implicature, but an array of weak ones.

2.2.2 The determinate/indeterminate continuum

Grice (1989) distinguished between ‘meaning non-naturally that’ (meaning_{NN}) and ‘displaying direct evidence that’: the former is a true case of meaning, based on indirect evidence, whereas the latter is a form of showing, formulated as a response to direct evidence. This is illustrated in the following exchange:

21) A: How’s Ailsa doing?

B: She’s in a white rage again.

In the scenario in which (21) was uttered at work, the concept WHITE RAGE could denote a type of anger which suggests that Ailsa is extremely angry. By Grice’s (1989) calculations, B intended A to produce the particular implicated response ‘r’ below:

22) Ailsa is extremely angry again.

A’s response is attained through the recognition of B’s intention to communicate it, and that the recognition of B’s intention is ‘at least part of his reason for producing r, and not merely the cause of his producing r’ (Grice, 1989, p.92).

It is possible to contrast B’s behaviour with an example of non-verbal communication. In this instance, the communicator’s intended meaning of the exchange would change if in response to A’s question in (21), B indicates with a gesture of the head and eyes that A looks over in the direction of where Ailsa is standing without any words being uttered. It is possible that B intends A to believe that Ailsa is very angry, and also that A should recognise B’s intention for A to believe that Ailsa is angry, and that maybe it is better to stay away from

Ailsa at this time. The conclusions are far less determinate though, with a broad range of possible answers, thus not constituting a case of true speaker meaning; according to Grice (1989), the recognition of B's intentions here are not said to be part of A's reason for producing *r*, where 'r' indicates the list of possible implicated conclusions above. The reason, Grice (1989, p. 218) explains, is that it constitutes a case of 'deliberately and openly letting someone know' through the use of direct evidence; it, therefore, demonstrates how the hearer has not recognised the utterer's intentions through means of indirect evidence.

Sperber and Wilson (1986/1995) argue that the distinction between meaning_{NN} that and displaying direct evidence that (showing) cannot be maintained. In their account of ostensive inferential communication, they rework their notion of manifestness into a revised edition of Grice's (1989) definition of meaning_{NN}, introduced in section 2.1: 'a proposition is manifest to an individual at a given time to the extent that this individual is disposed to draw (non-hypothetical) inferences from it' (Sperber and Wilson, 2014, p. 18). It follows from the use of the notion of manifestness that there may be cases in which a speaker's meaning can also be more or less determinate, and instead of accessing a clear single proposition, there could be 'an open disjunction of such specific explanations' (Grice, 1989, p. 40).

Relevance theory challenges Grice's (1989) dichotomy between meaning_{NN} and showing, and raises the idea of a continuum of cases between meaning/showing and determinate/indeterminate, which is explained through their notion of manifestness (Sperber and Wilson, 1986/1995). The example illustrated in (21) and (22) constitutes a case of 'determinate meaning'; it is meaning because all the evidence from the overtly intended utterance is indirect, and so it is solely derived from the speaker's intentions made mutually manifest during the course of interpretation; it is determinate because (22) has been paraphrased into a single proposition (Sperber and Wilson, 2014). The case of the non-verbal head and eye gesture would be an instance of 'indeterminate meaning/showing' in which there is:

No more than a rough indication of the type of conclusions the addressee is being encouraged to derive, and the intended import is not paraphrasable as a proposition at all. In Grice's terms ... [what B] communicates is an open disjunction of propositions; in our terms- for the time being-, what she communicates is an impression. (Sperber and Wilson, 2014, p. 8)

It is the indeterminateness of the utterance that constitutes the 'open disjunction of propositions', and creates more of an impression than a strongly communicated thought (Sperber and Wilson 2014, p. 8). It also falls between the meaning and showing continuum because whilst B directly displays the evidence of the head and eye gesture to indicate A to look at Ailsa, the implicatures are also constructed from her communicative intentions. Sperber and Wilson (2014), thus, provide all these various means with which to comprehend the subtle differences in how we communicate.

Sperber and Wilson (2014) define an impression as the construction of a range of weak implicatures (the open disjunction of implicatures) which communicates a vague or non-lexicalised thought. It is these types of thoughts that are responsible for metaphoric utterances, for Sperber and Wilson (2014). On their continuum, poetic metaphor is defined as an instance of 'indeterminate meaning'. To explain, the metaphor below is situated within the context of a factory fire in China:

23) From the fumes came clouds of fear.

Sperber and Wilson (2014) would argue that examples such as (23) can also not be paraphrased by a single proposition since it communicates an array of weakly implicated propositions:

- 24) a) From the fumes of the fire, there were workers, trapped inside, that were scared.
- b) From the fumes of the fire, there were bystanders that were scared.
- c) There was fear from family members for those trapped inside.
- d) There are implications as to why fire regulations were not adhered to.
- e) There was a general feeling of fear about the possible death toll.
- f) There was a general feeling of fear about the extent of the damage.

In contrast to the head and gesture example, the evidence is entirely indirect, so it constitutes meaning, not showing. Although the impressions or metaphors conform to a vague form of communication, not interpreted by a singly and strongly communicated proposition, it is still propositional.

2.2.3 The vagueness in ‘poetic thought’

Coleridge (1986, p. 60) claims that ‘the poem is marked by its untranslatableness in words of the same language without injury to meaning’. Similarly, Sperber and Wilson (1986/1995) point out that poetic language is hard to paraphrase without losing the intended effect. They refer to their view that metaphoric language use communicates a vague or non-lexicalised thought.

Aristotle (322BC, cited in Roberts, 2000) claimed that ‘a good metaphor implies an eye for resemblance’. Aristotle’s ideas reflect the original Sperber and Wilson (1986/1995) account, which specifies that the thought of the speaker is in a relation of non-identical resemblance to the propositional form of the utterance, represented in the hearer’s mind after certain pragmatic enrichments. The public propositional representation (utterance) and the private propositional

representation (thought) resemble each other in that they share some, but not all, logical and contextual properties. For example, in consideration of the following line of poetry by Auden:

25) 'In the deserts of the heart.' (Auden, 2002, p. 295)

The HEART is likened to a DESERT. It is not intended to mean that the HEART is perceived to be place of extreme heat, containing large quantities of sand and camels. Instead, the line conveys that the HEART shares some of the properties assigned to DESERT, such as a vast entity in need of nurturing (watering) to avoid turning emotionally dry and arid. Moreover, Sperber and Wilson (1986/1995) stipulate that a literal interpretation has been defined as one of a limiting case of resemblance in which the content of the two propositional representations is identical (Sperber and Wilson, 1986/1995).

In relevance theory, an utterance comes with a presumption of its own optimal relevance, not with a guarantee of literal truth (Sperber and Wilson, 1986/1995). The interpretation of metaphor is seen as a process of sorting through logical and encyclopaedic entries made accessible by the concept, some of which are consistent with the intended interpretation and some which are not. This is a clear departure from Grice (1989) who claims that a hearer interprets an utterance as metaphorical only if the literal interpretation is found to violate the Maxim of Truthfulness (itself a sub-maxim of the Maxim of Quality). Sperber and Wilson (1986/1995, 2008) argue that metaphor involves no special mechanisms and is not, as Grice seems to have thought, a departure from the norm. Metaphor is used extensively in everyday speech, as is figurative language generally, and is considered within relevance theory to be a natural occurrence underpinned by the same processes as normal discursive language (Sperber and Wilson, 1986/1995).

To illustrate the idea of vague 'poetic thought' further, consider the following example from the work of Plath:

- 26) 'I see myself as a shadow.' (Plath, 1962, cited in Hughes, 1981, p. 182)

Sperber and Wilson (1986/1995) say that it is possible to spell out one's thoughts more extensively as to the nature and meaning of the above self-reflective discourse, but that it would require substantially more words to do so. However, the above utterance seems to communicate all the same implicatures (and more) in a more economical way through the medium of the metaphor. A hearer would search extensively through the encyclopaedic entries attached to the encoded concept of SHADOW in a way not encouraged by literal uses of language. Regarding the fact that not one determinate implicature comes to mind, the hearer retrieves a wide array of weak implicatures (Sperber and Wilson, 1986/1995). Therefore, this deeper search of one's encyclopaedic entries of a concept in metaphorical structures demands extra processing effort and so gives rise to extra cognitive effects in accordance with the relevance-theoretic comprehension procedure (Sperber and Wilson, 1986/1995). The weak implicatures may include the following:

- 27) a) I see myself with no definite identity.
b) I see myself as a trace of a person.
c) I see myself as lacking confidence.
d) I see myself as someone who resides in the background.
e) I see myself as a person who is feeling emotionally low.

Carston (2002, p. 321) speculates that it may be the case that this is not only the easiest way to communicate such vague thoughts, but it is the *only* way. Her view suggests that thought occurs in another format other than any of the concepts encoded in the linguistic system. Carston (2002) follows Fodor (1975) in his suggestion of a language of thought that resembles natural language by way of logical structure, but which is encoded within a separate, symbolic format (see

chapter three). As a result, the non-lexical thought is in a relation of non-identical resemblance to the proposition expressed by the utterance after having been fleshed out by pragmatic means (reference assignment, disambiguation and pragmatic enrichment). Therefore, the encoded concept SHADOW in the proposition expressed, as illustrated above, only shares some logical and contextual implications with the thought it interprets. Consequently, it necessarily denotes a lack of precision when fleshing out the vague thoughts conveyed through metaphorical or poetic devices in general.

Whilst this thesis puts forward the view that metaphoric language uses are able to communicate non-lexicalised thoughts, the principal thrust of this research is to show that by incorporating non-propositional representations within the interpretation procedure, metaphors can more closely resemble the thought they serve to represent. It is not to deny that there may be numerous instances in which poetic metaphors may communicate a vague thought. However, there are also extensive examples which demonstrate that through the representation of sensory and feeling components, metaphoric interpretation leads to a closer resemblance between the speaker's utterance and the thought the hearer derives in representing it.

As a final point, a relevance-theoretic analysis of a conventional or stereotypical example of a metaphor is:

28) 'Blind in love.' (Plath, 1962, cited in Hughes, 1981, p. 178)

As previously mentioned, a search is triggered of the encyclopaedic entry accessing assumptions according to the relevance-theoretic comprehension procedure (Sperber and Wilson, 1986/1995). A creative metaphor would lead to the retrieval of a wide array of assumptions whereas a conventional metaphor derives a couple of strong implicatures. The information accessed from the encyclopaedic entry may be as follows:

- 29) a) Lacking the power of sight.
- b) Without foresight.
- c) Concealed.
- d) Unaware of what lies in your path.
- e) Unaware of your physical boundaries.

Subsequently, the assumptions accessed from the encyclopaedic entry of BLIND are processed alongside the concept of LOVE, leading to the construction of several implicatures. Some of these implicatures will be contradictory to the interpretation and, as a consequence, discarded whilst others will remain, as shown below:

- 30) a) Once in love, you are unaware of anything apart from your lover.
- b) Once in love, you are unable to see the flaws of your lover.

The example in (28) fleshed out to (30) is a familiar or conventional metaphor since the interpretation of these two concepts in juxtaposition is already well established. It requires no extensive search of the encyclopaedic entry. Instead, it accesses the two determinate and strong implicatures shown above. In order to make it into a novel metaphor or, rather, one that merits the indirectness of the utterance (extra effort in producing further cognitive effects), the implicature would have to incorporate 'blind to a certain degree'. Therefore, it might produce the following implicature:

- 31) Once in love you are almost completely unaware of the world around you or as to the flaws of your lover *to a degree* that astounds the speaker of the utterance.

Since creating the weak implicature account of metaphor, Sperber and Wilson (2008) have made certain substantial changes, discussed in the next section.

2.3 Ad-hoc concepts and emergent properties

2.3.1 The ad-hoc concept account of metaphor

Carston (2002) offers an account in which the processes of metaphoric interpretation are subtly different to Sperber and Wilson's (1986/1995) original account. Broadly speaking, relevance theorists follow Fodor's (1981) conception of the simple, unstructured, lexical atomic concept. The concept has an address in memory linking to three kinds of information: lexical properties, inclusive of phonetic, phonological and syntactic information of the encoded concept; a logical entry of meaning postulates, which implies certain analytic implications; and an encyclopaedic entry pertaining to stored information in the form of scientific or cultural beliefs, personal experience and so on (Carston, 2002) (see chapter five for a more comprehensive discussion of concepts).

For Carston (2002), as with Sperber and Wilson (1986/1995), the meaning communicated by a word is almost always distinct from its encoded meaning. As such, Carston (2002) argues that the encoded concept provides a schema with which to construct a new concept in cognition. This new concept is known as an ad-hoc concept, and is created for a particular occasion of use from the lexically encoded concept, according to the relevance-theoretic comprehension procedure (Carston, 2002; Sperber and Wilson, 2012). To be ad-hoc means that it represents a constituent of thought that could be either lexicalised or non-lexicalised: 'rather than being retrieved as static units from memory to represent categories, concepts originate in a highly flexible process that retrieves generic and episodic information from long-term memory' (Barsalou (1987, p. 101). The claim is that an ad-hoc concept is an unstable entity whose meaning is dependent on the

context in which it is derived. Arguably, a lexically encoded concept is stable and independent of its context.

If in the context of just having been to a meditation class, I utter the words:

32) I am content.

An account on this approach suggests that I first access the lexically encoded concept CONTENT. This general concept encompasses the nature of contentedness, and is used as a schema to communicate a more specific, fine-tuned notion of being content. The specific meaning would constitute the ad-hoc concept CONTENT*⁶, reflecting a component of the speaker's thought (Carston, 2002). The significant difference to Sperber and Wilson's (1986/1995) original account, in Carston's (2002) view, is that the ad-hoc concept is built into the proposition that is explicitly expressed, as part of local processes of lexical modulation.

The original relevance-theoretic conception of loose use had it that the encoded concept was explicitly expressed whereas the ad hoc concept one was built into the implicated proposition. The original account predicted that the speaker's thought *resembled* the proposition explicitly expressed by the utterance since it shared only a selection of logical and encyclopaedic properties (Sperber and Wilson, 1986/1995). However, the more recent ad-hoc account (discussed, for example, by Carston (2002), Sperber and Wilson (2008) and Wilson and Carston (2007)) places the ad-hoc concept into the explicature. If the ad-hoc concept is explicitly expressed, it means that the relation between the speaker's thought and the proposition expressed is much closer than the original account presupposed. As Carston (2002) claims, the area of interpretative resemblance now lies between the encoded concept in the logical form and the ad-hoc concept in the proposition explicitly expressed by the utterance. It captures the intuition that our words/encoded concepts only resemble our thoughts, but that when these

⁶ * denotes an ad-hoc concept.

concepts are fleshed out through pragmatic inference, it allows the possibility that they can be more closely aligned to the thought that expresses them.

By way of example, take the metaphorical utterance ‘blind in love’. On the ad-hoc account, the lexically encoded concept LOVE is used to communicate a specific, non-lexical ad-hoc concept LOVE*, which is now found in the proposition explicitly expressed. The area of interpretative resemblance lies between LOVE and the inferentially developed LOVE*. As a consequence of this view, LOVE* is closer to the constituent of thought it expresses (possibly in a symbolic format) (Carston, 2002). The ad-hoc concept account means that thoughts are more explicitly expressed. Nevertheless, for metaphoric utterances, both theories describe a process that accesses a wide range of assumptions from the encyclopaedic entry of a concept and makes them marginally more salient to the hearer. Hence, these assumptions are communicated as either a weak implicature, as on the original account, or affording the construction of a new ad-hoc concept embedded in the proposition explicitly expressed.

The notion of the ad-hoc concept has now been incorporated into Sperber and Wilson’s (2008) account of communication and cognition. This means that both accounts view metaphor as constructing an ad-hoc concept according to its contextual use in the explicature. The difference is that while Sperber and Wilson (2008) view highly creative metaphors as constructing an ad-hoc concept in the explicature, they essentially lack an explicit meaning. The reason, for them, is that metaphors are vague or indeterminate and so communicate an impression through the construction of an array of weak implicatures. Sperber and Wilson (2008) and Carston (2010) agree that metaphor is a case of loose use in which an ad-hoc concept can be broader or in some cases also narrower than the lexically encoded one. As discussed in section 2.2, the instances of loose use range along the continuum from approximation, hyperbole to metaphor, showing how metaphor is not a distinct kind (Sperber and Wilson, 2008). This is illustrated in the following example (adapted from Wilson, 2011a):

- 33) The room is airless.
- a) AIRLESS- literal use.
 - b) AIRLESS*- approximation.
 - c) AIRLESS**- hyperbole.
 - d) AIRLESS***- metaphor.

The following analyses employ the setting of a space shuttle. The literal use would imply that there literally is no air or pressure in the space shuttle. The context for the utterance is in reference to when astronauts have just come back to the space shuttle through a special airlock in which the air is going to slowly fill up the space. However, they would still be wearing their spacesuits, which are supplied with air. The approximation AIRLESS* could imply that the airlock is very close to being AIRLESS, but that the differences are inconsequential. In this instance, the airlock of the space shuttle could be in mid-transfer and has just started the process to oxygenate, but has not got very far. AIRLESS**, in the hyperbolic sense, indicates that it is closer to AIRLESS than is desired. The astronauts are waiting so that they can take off their suits and breathe the air normally again. There is a little impatience in this remark as they are watching the dial, showing the levels of air move slowly. The metaphorical AIRLESS*** implicates that the space shuttle seemed airless, but was not actually so. It revealed a claustrophobic and tense atmosphere in which there was an awkward silence. It might suggest that the astronauts had spent too much time together in a small confined space. As a result, it can be seen how the ad-hoc concept is broader in its denotation than the encoded one.

A narrower example to the encoded lexical concept, however, would indicate the opposite:

34) I need to eat.

The encoded concept EAT is narrowed to EAT* which specifies eating a certain meal, such as dinner, and not just the general category of eating. Therefore, it is possible to see how both approaches view metaphor the same way as other lexical uses: as an adjustment to the lexical word in accordance with its contextual use, and in the creation of an ad-hoc concept (Sperber and Wilson, 2008).

2.3.2 The emergent properties issue

Wilson and Carston (2008) raise the issue of emergent properties in which certain assumptions, supposed to be constructed from the metaphorical vehicle concept, are not actually present in the encyclopaedic entry of this concept. Even though Wilson and Carston (2008) argue that the relevance-theoretic account can deal with emergent properties, the claim in this thesis is that it is not fully explained by their propositional approach to language use.

Metaphors are conceived to be broader and narrower than the lexically encoded concept (Sperber and Wilson, 2008; Wilson and Carston, 2008; Carston, 2002).

An example is:

35) Michael is a HOOVER*.

In (35), broadly speaking, HOOVER* is broadened to include people in its denotation, and narrowed to include the idea of the intake of certain types of materials, such as ideas and lessons as opposed to dust and dirt. More specifically, the encoded concept HOOVER accesses logical information, such that *if X is a Hoover, X is a piece of electrical equipment for cleaning carpets*, which is suppressed in the inferential derivation of implications, indicating its broader use (Sperber and Wilson, 2008). It would also have to access encyclopaedic information, including the fact that hoovers take in certain types of materials, such as ideas and lessons, narrowing the encoded concept by this acting as a context for the comprehension procedure (Wilson and Carston, 2008). In Rubio-Fernández, Wearing and Carston's (2015) terms, the feature 'takes in ideas and lessons' would move from a peripheral position to a central position in the

interpretation procedure. Therefore, the utterance creates a set of contextual assumptions from the encyclopaedic information that act as input to the comprehension procedure to yield the relevant implication conclusion:

- 36) a) Explicit content: Michael is a HOOVER*.
- b) Contextual Assumptions: A Hoover takes in ideas and lessons from colleagues; something or someone that takes things from other colleagues does not give much in return.
- c) Contextual Implication: Michael takes in ideas and lessons from other colleagues and does not give much in return.

The assumptions raised by the vehicle concept HOOVER* are said to constrain the search for relevance within the target concept MICHAEL, thus making salient certain information to the hearer. However, the encyclopaedic entry for HOOVER does not contain information about ‘takes in ideas and lessons’ in its address in memory to be able to construct the contextual implication ‘takes in ideas and lessons from other colleagues, and does not give much in return’. The fact that the features in HOOVER do not overlap with those derived in HOOVER* is called the emergent properties issue (Wilson and Carston, 2008). It almost seems that the encyclopaedic entries have been used metaphorically, but this, according to Carston (2002), does not explain how the comprehension process unfolds.

Wilson and Carston (2008) attempt to address this through an inferential account that incorporates an idea of backward and forward inference. Backward inference implies from an expected implicated conclusion to the contextual premises (selected assumptions) whilst forward means from the encyclopaedic information to the implicated conclusion (Wilson and Carston, 2008). This is further described through the following exchange:

37) A: Why don't you ask Michael to help you?

B: Michael is a Hoover.

B's utterance in (37), according to relevance theory, would lead to the construction of the following:

38) a) Explicit content: Michael is a HOOVER*.

b) Contextual assumption: Hoovers take in ideas and lessons from colleagues; Michael does not help other colleagues out.

c) Contextual implication: I will not ask Michael for help.

The encoded content is enriched to supply (38a). The contextual assumptions, however, are not solely derived from the encyclopaedic entry of a concept; they are formed from the backward inference from the contextual implication (38c) 'I will not ask Michael for help', with forward inference from the possible encyclopaedic entry of 'takes in dust and dirt'. However, it still seems unclear exactly how 'takes in ideas and lessons' is included in the contextual assumptions in (38b).

Levinson (cited in Sperber and Wilson, 1987) also makes the point that Sperber and Wilson (1986) seem unable to account for emergent properties in his use of the following example:

39) A: 'Would you drive a Zordia?

B: I wouldn't drive ANY expensive car.

Implicated premise: A Zordia is an expensive car.' (Levinson, cited in Sperber and Wilson, 1987, p. 733)

Levinson (cited in Sperber and Wilson, 1987) queries how the premise can be made accessible when it is not information already known to the addressee.

Sperber and Wilson (1987, p. 749) counter his objections by stating that the contextual assumptions are derived ‘from the environment by perception; from memory, by deduction, non-demonstrative inference, or the development of assumption schemas’. Therefore, it is quite possible, on Sperber and Wilson’s (1987, p. 749) view, to take an assumption of the form ‘*If P then Q*’, and work out if there is sufficient evidence for the form *P*. For instance, If A trusts that B is following the principles of relevance, then he/she can work out that: if B wouldn’t drive any expensive car, then a Zordia is an expensive car. It is an assumption that is derived through the process of interpretation.

Rubio-Fernández (2013) also defends the relevance-theoretic position by claiming that emergent properties result not from the associated encyclopaedic information, but from local inferential processes that operate at the lexical level. Emergent properties are not only present in non-literal utterances, in her view, but also in literal ones:

- 40) ‘John didn’t know how to swim, so when he fell into the water, his best friend threw him a basketball.’ (Rubio-Fernández, 2013, p. 724)

Rubio-Fernández (2013, p. 727) claims that the emergent property in (40) ‘CAN BE USED TO STAY AFLOAT’ is not normally associated with BASKETBALL, and so is accessed through local inferential processes, occurring at the explicit level, following Carston’s (2002) ad-hoc concept approach. Since activation for emergent properties is fast, according to her, it allows time for backward inference from the implicated conclusion to the development of the ad-hoc concept in which an associated property, such as ‘can be used for playing basketball’ would be replaced by the emergent meaning.

Rubio-Fernández’s (2013) studies offer interesting insights into the inferential nature of concepts, the ubiquitous existence of emergent properties, and how they can be situated within a pragmatic framework. By local inferential processes, it is assumed that Rubio-Fernández (2013) refers to a form of top-down pragmatic inference, which operates over individual words in determining their explicit

meaning. No doubt many relevance theorists would adhere to an incremental word-by-word approach to processing (Marslen-Wilson, 1973), so the assumption is that there are local lexical processes working alongside the global processes of backward and forward inference in accounting for these emergent properties.

While this thesis corroborates Rubio-Fernández's (2013) view on inferential processes to a certain extent, it proposes that she misses the way in which emergent properties are also the result of non-propositional representations, such as the sensory or feeling aspects, accessed during the comprehension procedure. For example, in a simplified way, the physical sensation of 'sucking' could evoke the idea of taking things in, in a more precise way. The local inferential processes would operate over the non-propositional information associated to the concept in the context of producing a lesson to understand with further precision how it is that Michael behaves with fellow colleagues. As a result, the utterance may convey a feeling of slight resentment through the creative use of the metaphor, which more closely captures the thought it serves to represent. The inclusion of non-propositional elements enables novel metaphoric uses to communicate non-lexicalised thoughts in a way that can be made more strongly manifest to the hearer/reader, rather than remaining vague.

In essence, these theorists attempt to explain metaphor through an inferential model of utterance interpretation that employs conceptual and propositional representations. One of the beneficial aspects is that speakers who use metaphors are able to express beliefs about the world. However, examples such as the emergent properties issue highlight that a certain element is missing from these accounts: the non-propositional element of feelings and sensory information, described below.

2.4 Feelings and emotions

After having looked at relevance theory's inability to account for the non-propositional during metaphoric comprehension, this section analyses the role feelings play in cognition. As an example, consider the description of a particular

stage performance by Kurt Cobain in (41) in which the reviewer talks about his voice and guitar playing:

41) ‘You’re hearing him smile⁷.’ (Petridis, 2015)

The addressee of the utterance would be able to map the vehicle concept SMILE onto the target HEAR to understand the particular way in which we hear his happiness through this music. As explained in sections 2.1 and 2.2, the relevance-theoretic comprehension procedure provides an effective account of how we derive the implicated propositional conclusion as to what the speaker means. The key point is that it is composed of concepts, with only logical properties, such that:

42) You’re understanding his happiness through his music.

Whilst conceptual and propositional representations can provide an account of many literal utterances, is it possible to truly understand Cobain’s <happiness> in the above metaphorical example through a composition of logical concepts? Could the concept of HAPPINESS be understood in further depth if it also directly accessed a feeling response, such that you may also feel a trace of it? Hence, this section aims to show how affective states can be mentally represented in cognition; if this is the case, it is possible that these mental representations can contribute to the proposition expressed by the utterance during metaphoric interpretation. It would enable the indispensable combination of the aesthetic experience of metaphor: a conceptual and an affective one.

Since the advent of quantum physics, there has been a broadened understanding that knowledge structures are formed through our subjective lenses (Groblacher, *et al.*, 2007), and so providing an account of feelings, the most subjective of phenomena, seems less of an impossibility. According to Damasio (2003, p. 4) feelings form a bridge between the body and the mind: ‘emotions play out in the theatre of the body. Feelings play out in the theatre of the mind’. Emotions are

⁷ Research has suggested that we can *hear* smiles, or rather certain faint sounds we emit when performing different kinds of smile (Schroder, Auberger and Cathiard, 1998).

seen as changes to the nervous system, heartbeat and blood circulation, viscera, musculoskeletal system and hormones in the body proper whilst feelings belong to the mind. This distinction is crucial since central to it is the claim that feelings⁸ have a cognitive status. Damasio (1994) states that feelings follow emotions like a shadow, born out of bodily reactions, yet rooted in cognition (Damasio, 1994). Although other authors employ different terminology, Damasio's (1994, 2000) classification of feelings, rather than emotions, as the cognitive element is consistent with Ekman's (2004). If feelings are construed as residing within the mind, the suggestion is that they can be mentally represented and interact with conceptual thought. This may shed light upon the comprehension process of creative metaphorical language that is claimed here to access both a rational and a feeling response.

Damasio (1994, p. 131) argues for a distinction between two types of emotions: primary and secondary. The former are hard-wired, innately given responses: 'we are wired to respond with an emotion, in a pre-organized fashion, when certain features of stimuli in the world or in our bodies are perceived, alone or in combination'. This is similar to the way a small chick may respond with fear upon seeing a large wing span cast a shadow over its nest. A feature of the environment triggers a body state reaction of fear. In humans, it is proposed that upon detecting the presence of its mother's breast, the sensory cortices of a hungry infant will trigger an emotion response of happiness from the relief of hunger (Damasio, 1994). These universal and primary emotions consist of the following five basic and restricted repertoires of body state changes: happiness, sadness, fear, anger and disgust (Damasio, 1994). They are consistent with most other categorisations in psychology⁹.

The next step in phylogenetic human development is what Damasio (1994, p. 131) would term the 'feeling' or rather the experiencing of the emotion, which constitutes 'the realisation of the nexus between object and emotional body state'. The feeling of the emotion simply means that there is a mental representation in

⁸ To avoid confusion, Damasio's (1994, 2000) terms differ to those employed by Rey (1980). For Rey (1980), emotions are cognitive whereas feelings are physical.

⁹ Ekman and Friesen (1971) recognise surprise as a sixth universal emotion.

cognition of these emotional changes to the body proper¹⁰ and of the specific objects or situations that triggered them. A cognitive feeling can become conscious, supplying the individual with adaptive knowledge of the environment (Damasio, 1994). It would allow humans to predict future outcomes by matching response to situation, and lead to the creation of a wider more fine-tuned range of emotions, enabling us to manage our environments more effectively. These latter emotions, derived from learnt experience, are the secondary emotions, which expand upon the five primary emotions, listed above.

In terms of these secondary emotions: happiness may produce the subtler varieties of euphoria and ecstasy; sadness derives melancholy and wistfulness; and fear can be the source of panic and shyness (Damasio, 1994). Imagine hearing about the death of a family member who you had not spared time to visit for some while. The ensuing thought about this scenario is said to trigger an emotional body state response and a feeling, the cognitive representation uniting the thought of the death with the emotion. The body state reaction (emotion) may be one of slight disgust at one's own actions, possibly experienced as a tensing of the gut wall and a slight sensation of nausea. On feeling the emotion of disgust, alongside the news of the death, it may lead to the secondary emotion of shame, a refinement of the primary emotion of disgust. The feeling of shame is said to facilitate the way that we self-regulate our impulses in the imagined or actual presence of another, which is a product of the way we interact and cope with modern civilization (Bradshaw, 1988). In other words, in learning to survive more efficiently, secondary emotions of this kind enable us to adapt.

Despite the apparent differences between primary and secondary emotions, Damasio maintains that they are, nonetheless, constructed from the same machinery:

Nature, with its tinkerish knack for economy, did not select independent mechanisms for expressing primary and secondary emotions. It simply allowed secondary emotions to be expressed by

¹⁰ Body Proper is a term used by Damasio (2000), but it is also referred to here to mean the holistic systems of the body: the sensory nervous system (within the muscular system), the fascial system and the fluid system (Myers, 2009).

the same channel already prepared to convey primary emotions.
(Damasio, 1994, p. 139)

In sum, an emotion is an accumulation of body state changes as a result of a certain thought (or mental image/representation¹¹) about a state of affairs in the world. A feeling, by contrast, is understood as ‘the experience of such changes in juxtaposition to the mental images that initiated the cycle’ (Damasio, 1994, p. 145). Therefore, feelings provide the essential connection between the body and the mind. They also function to alter our mental representations, or rather the way we think about the world as the body state changes (emotions) are registered (consciously or unconsciously) in the mind.

It is not totally transparent whether Damasio (1994) is asserting that feelings are stored in the same way as conceptual representations or whether they can simply be accessed by the conceptual parts of human cognition. Feelings seem to count as a mental representation of sorts seeing as they are described as belonging to the ‘theatre of the mind’ (Damasio, 2003, p. 4). Hence, the result is that they could be a mental representation that is either able or unable to interact with our conceptual and rational thought processes. Seeing as Damasio (1994) challenges the high reason view in which rational processing must be unencumbered by emotion, this thesis assumes he means that feelings can be accessed by our conceptual thought processes. If feelings constitute their own type of mental representation, this thesis proposes that they can contribute to the proposition expressed by the utterance in the conceptual regions of cognition during metaphoric utterance interpretation.

Damasio’s (1994) Somatic Marker Hypothesis describes how our feelings or cognitive awareness about an imagined outcome of a certain situation will narrow down the available options: ‘when the bad outcome connected with a given response option comes into mind, however fleetingly, you experience an unpleasant gut feeling... and [this] then allows you to choose from fewer alternatives’ (Damasio, 1994, p. 175). Without such a capacity, we become limited in our ability to make informed conceptual and rational choices. Damasio

¹¹ Mental image for Damasio (1994) is synonymous with mental representation.

(2000) cites the example of patient S who suffers from calcified amygdalae. She is unable to experience the primary emotion of fear, nor to cognitively register it as a feeling. In a series of tests, she could not distinguish between faces that looked trustworthy and those that were untrustworthy because she could not feel the fear it might involve. As a result, patient S and others with similar damage cannot make sound social judgements since there is no emotion to be detected by a feeling, and no feeling to affect our conceptual thought processes. Affective information is, therefore, vital to our rational thought processes and not separate from them.

To summarise, Damasio (1994) seems to argue that although feelings have their own type of mental status, they can contribute to conceptual thought. If this is the case, then linguistic and pragmatic explanations of creative uses of language that do not incorporate a notion of a feeling response fall short in some way.

Damasio's (1994) ideas can be used in order to explain, from a neurological perspective, the way in which feelings link emotional responses to the mind. In view of the example in (41) and (42) above, the claim here is that both a feeling and conceptual response is fundamental in the analysis of novel or poetic metaphors and language in general.

As Milosz (2002, p. 413) suggests, 'poetry has to do with the non-rational parts of man... [f]or a poet a human being is a mystery ... this is a religious feeling'. In all the arts feelings play a key role in in how they are appreciated and understood. Poetic metaphors give rise to both emotions/feelings alongside a rational contemplation. Ogden and Richards (1967) make the distinction between an affective response being evoked by a poem as opposed to its merely being described:

It is the difference between the presentation of an object which makes use of the direct emotional disturbances produced by certain arrangements, to reinstate the whole situation of seeing, or hearing, the object, together with the emotions felt toward it, and on the other hand, a presentation which is purely scientific, i.e., symbolic. (Ogden and Richards, 1967, p. 70)

As discussed further in section 2.5, describing an emotion is different to feeling it. Moreover, the feeling experienced on reading a poem is derived through a perceptual representation of the entities in question. What Ogden and Richards (1967) term as 'the poem as art object' provides a vehicle for the expression of metaphors, and demonstrates how the addressee represents the relevant senses and feelings upon reading the poem. It is not that we simply hear the words, activate these sensory and affective elements, and then move on to the conceptual area of mind where utterances are processed in a conceptual format, as Fodor (1983) claims. Following Sperber and Wilson (1986/1995), it is only the conceptual and propositional representations which are altered during the interpretation of metaphor. Ogden and Richards (1967) suggest that it is our sensory representations that are altered. If this is so, it is possible that sensory information can be accessed through the part of the mind that deals with reasoning, deciding and utterance interpretation. Metaphorical use within the poem conjures not just feelings, but also specific images, sounds and smells, which evoke and awaken our felt sense of the world around.

Langer (1967, p. 70) concludes that the poem produces a direct emotional experience, and that it constitutes a 'piece of virtual life': 'in reading a poem one has the illusion that one is directly experiencing life' (Langer, 1967, p. 70). Whether the experience we construct is real in the sense of undergoing the actual emotions evoked or whether it constitutes a more superficial experience is an interesting point and is reflected in Damasio's (1994) 'as if' type emotion. In contrast to the normal pattern of emotions that follow a mind to body and back to the mind route, the 'as if' bypasses the body and has the subsequent effect:

We conjure up some semblance of a feeling within the brain alone. I doubt, however, that those feelings feel the same as the feelings freshly minted in a real body state. (Damasio, 1994, p. 156)

In the process of hearing or reading a metaphor, it is possible to create a semblance of feelings in the fleshing out of another's thought. Regardless of whether the poet intends to evoke a real or a semblance of feelings, it is the evocation of an affective experience that is pivotal. This is not to be confused with the expression of a feeling in which the reader or hearer is not drawn to

share in this felt experience, a point which I return to when elaborating on Pilkington's (2000) phenomenological account of metaphorical comprehension. The idea is that metaphors appeal to our sensory perception of the world, and how we *feel* life as opposed to solely how we rationalise and conceptualise it.

Pilkington's (2000, p. 141) work on affective communication from a linguistic perspective, discussed in section 2.5, refers to the following quote from Longinus: 'the right occasions are when the emotions come flooding in and bring the multiplication of metaphors with them as a necessary accompaniment'. The quote shows how creative metaphorical uses are inextricably linked to emotions and feelings. The supposition is that the juxtaposition of unfamiliar concepts in novel metaphors captures with greater precision than normal discursive language feelings and emotions, not only through an extensive search of our conceptual resources, but also through the activation of our perceptual and affective experience. This illustrates the need to synthesise relevance theory's conceptual and propositional approach with ideas about the role of non-propositional elements.

Metaphorical expressions provide a way to connect thought to feeling. As Heaney (1974) claims, the poet's task is to put 'feelings into words'. The essential crux is that it does not amount to the communication of feelings through the medium of conceptual thought, but to the communication of feelings as a mental representation in their own right, which is a form of subjective awareness of the emotions or body state reactions they follow (Damasio, 2000). Poetical language takes us down a different path to understanding. Pilkington (2000, p. 164) argues that 'the reader experiences the feeling that the writer intends to communicate'. The reader, on this view, is assumed to construct the feeling response as intended by the poet by adapting the relevance-theoretic comprehension procedure for metaphor and poetical language in general. This means that metaphoric interpretation is still rooted in cognitive pragmatic theory in which linguistic stimuli trigger events in the mind that cause mental processes, except that these propositional mental representations can include sensory and affective information. As a result, it provides the reader with this all-important aspect of creative metaphor: a non-propositional one.

2.5 Looking ‘beyond’ the conceptual/propositional approach

In section 2.4 it was claimed that creative metaphors link not only to conceptual representations, but also to non-propositional ones, such as certain sights, sounds, smells and feelings. The aim in this section is to examine Pilkington’s (2000) attempt to include non-propositional elements within the relevance-theoretic approach. His view, however, seems to suggest that what we experience as non-propositional is essentially either propositional (conceptual) or non-propositional memories, as opposed to directly accessing affective states during the course of communication. As Sperber and Wilson state:

What look like non-propositional effects associated with the expression of attitudes, feelings and states of mind can be approached in terms of weak implicature ... [and] if you look at these apparently affective effects through the microscope of relevance theory, you see a wide array of minute cognitive effects. (Sperber and Wilson, 1995, p. 222 and 224)

Sperber and Wilson (1986/1995) have been clear in the past that what seem to be affective effects in the form of sensory or feeling experiences are converted into a conceptual format, in the Fodorian (1983) way, and they are experienced as cognitive effects.

To illustrate once again the need to go *beyond*, consider the following extract from Macbeth:

43) ‘Lady Macbeth: Here’s the smell of the blood still: all

the perfumes of Arabia will not sweeten this little hand.

Oh, oh, oh!’ (Shakespeare, cited in Verity, 1954, p. 74)

According to the relevance-theoretic account (Sperber and Wilson, 2008; Carston, 2002), the creative metaphor is derived by the bringing together of two concepts to yield a connection not previously or little made. The extended search demanded by the extra effort required in digesting the metaphor will alter the cognitive environment of the speaker and thus provide extra cognitive effects.

The ad-hoc concept SMELL OF BLOOD* evokes a trace of the murders left behind on the LITTLE HAND* of Lady Macbeth, in the form of the smell. The collocation LITTLE HAND* provides access to associated encyclopaedic information of a certain childlikeness in that Lady Macbeth seems to be distancing herself from the responsibility of the murders, making it all the more horrific. The assumptions raised are also thought to constrain the search for relevance for the following encoded concepts PERFUMES and SWEETEN, in that the smell of the perfume endeavours to sweeten the smell of the murders. Hence, Sperber and Wilson (2008) would claim that the encoded concept SMELL OF BLOOD would activate an ad-hoc concept SMELL OF BLOOD*, which, since it is not explicitly communicated, would make salient the following weakly implicated assumptions:

- 44) a) It is difficult for Lady Macbeth to conceal the murders.
- b) Lady Macbeth cannot forget the murders.
- c) Lady Macbeth is preoccupied that others may find out about the murders.
- d) Lady Macbeth feels guilty about the murders.
- e) Lady Macbeth wants to erase the murders from her mind.
- f) Lady Macbeth wants her conscience to be clear.

In this way, relevance theory aims to capture the indeterminacy of the metaphorical and poetic utterance through the ad-hoc concept and weak implicature account that reflects a vague thought that the hearer takes part responsibility in recovering. Notice that this is different to Carston's (2002) account, and the one put forward in this thesis, in which the ad-hoc concept is explicitly expressed, and so it more closely resembles the constituent of thought it represents. On the ad-hoc concept account, our non-lexical thoughts can be conveyed with more precision through metaphorical language uses. As Middleton

(1922. 75) states, 'metaphor is essential to the precision of language ... try to be precise and you are bound to be metaphorical'.

Pilkington (2000) suggests that there is a vital ingredient missing for Sperber and Wilson's (1986/1995) account.

This [the relevance-theoretic] account of poetic effects deals with what is communicated propositionally, [yet] it is generally assumed that the communication of what is loosely referred to as 'emotion' or 'feeling' plays a central role in poetic effects. (Pilkington, 2000, p. 141)

Pilkington (2000) views non-propositional states and properties as attached to the concept in the central systems of thought. He argues that additional to the encyclopaedic entry for encoded concepts, there is a phenomenological entry that, in terms of (43) above, might be able to access and convey the perceptual smell of old, rotting blood on the LITTLE HAND of Lady Macbeth. The phenomenological entry, thus, contains sensory representations, which communicate her need to disguise the murders with the fresh sweet smell, but which suggest her disassociation from them in a more vivid and tragic way. However, Pilkington states that:

Any set of assumptions that one might use to describe what is communicated would actually be thoughts about a phenomenal memory or phenomenal tone (just as, on a much more trivial level, 'I feel depressed' is a thought about a phenomenal tone). (Pilkington, 2000, p. 183)

Pilkington (2000) seems to suggest that these 'phenomenal' memories and tone are not about the experiencing of an actual emotion and feeling, but rather that they occur through our conceptual thought. They draw on remembered emotions as opposed to actual ones.

Pilkington (2000) bases his view of affective states on Sloman (1987) who distinguishes between temporary emotional states and attitudes. It is the latter which play a central role in the interpretation of metaphoric utterances. An example of the attitude of sadness is:

- 45) 'X is sad about not Y.
- a. X believes the state of affairs to be good or valuable.
 - b. X desires to (continue to) experience the state of affairs Y.
 - c. The state of affairs Y is no longer accessible or available to X for t amount of time.
 - d. The desire in (45b) is strengthened.' (Pilkington, 2000, p. 149)

For example, I may be sad about losing a particular friend in my life; it was a childhood friend that I believed I had history with alongside an emotional connection. I desire to continue this friendship, but after a falling out, this is now not an option, thus increasing my desire to maintain it. A metaphoric example that relates to sadness is:

- 46) 'Yes I long for you
not just as a leaf for weather
of vase for hands
but with a narrow human longing
that makes a man refuse
any fields but his own.' (Cohen, 1964, p. 62)

The juxtaposition of the adjective *NARROW* and the noun phrase *HUMAN LONGING* describes a sense of sadness that Sloman (1987) and Pilkington (2000) believe is cognitively represented as the belief/desire set in (45). This is because attitudes are essentially beliefs: 'an attitude, such as love or admiration, is a collection of beliefs etc. focussed on some individual, object or idea' (Sloman, 1986, p. 13). Sloman's (1987) ideas here do not reflect Damasio's (1994, 2000)

arguments about emotions/feelings in section 2.4. Surely, belief/desire sets are a way of viewing affective states not as a *sui generis* category, but as an extension of conceptual thought. Pilkington's (2000) account, thus, contrasts with Damasio's (1994) since feelings do not constitute a cognitive representation in their own right, enabling them to be communicated directly.

Nonetheless, Pilkington (2000) acknowledges that these attitudes may activate non-propositional properties, in the same way that concepts are argued to give access to echoic and iconic memories. As such his conclusion is that 'there are attitude-beliefs which loosely describe attitude-phenomenal states' (Pilkington, 2000, p. 153). It is these types of information that would be stored under his proposed phenomenological entry. For clarity's sake, the affective component that he argues for consists in belief/desire sets (attitude-beliefs) or phenomenal memories (attitude-phenomenal states). These phenomenal memories, he claims, constitute remembered emotions. That is to say that they only consist in activating a remembered emotion. On the account offered in this thesis, if I were to access the type of sadness that Damasio (1994, 2000) alludes to, it is constructed at the time of speaking, possibly partly from remembered associations, and also from how my body constructs that body state reaction in the moment. Remembered emotions are limited in their reach, and seem unable to adapt to the context.

Pilkington's (2000) view seems to offer the most concise approach in terms of addressing affective and sensory information in the accessing of metaphors. However, it appears to miss the extent to which non-propositional elements are not confined to an attitudinal format or a remembered emotion, and can be mentally represented in their own right and contribute to the proposition expressed. Damasio's (1994, p. 26) account of how the word <violin> is processed accords with the view proposed on this account in that it activates 'sensory and motor representations', and provides access to 'a range of somatic states appropriate to one's experience of a violin, e.g. like or dislike, pleasurable or painful sensation, and so on'. It is argued here that these sensory and motor evocations are experienced as partially, psychologically real representations that link to our felt-sense of the world around. The reason is that they access not

attitudes, but actual perceptual and affective (feelings) constituents, which can be mentally represented, enabling the body proper to experience the whole sensation. This is different to a conceptual or remembered comprehension of non-propositional components.

2.6 Conclusion

This chapter has outlined the way in which metaphor has been accounted for within relevance theory. It aimed to show that the relevance-theoretic comprehension procedure was unable to provide a satisfactory explanation for the role of non-propositional elements accessed during utterance comprehension. This thesis claims that the relevance-theoretic conceptual and propositional approach to language use cannot fully explain the emergent property issue in which properties arise during metaphoric interpretation that neither derive from the vehicle or target concepts. This chapter suggested that there is need to move beyond propositionality, and to develop a new framework in which non-propositional and propositional representations can be accessed simultaneously.

Following Damasio (1994, 2000), this chapter claimed that feelings have their own mental status, and so can interact with our conceptual and rational thought processes. This thesis takes elements from Damasio's (1994) approach and further claims that while feelings are qualitatively distinct from conceptual thought, they can contribute to the proposition expressed by the utterance in determining what a speaker of a metaphorical utterance means. Pilkington (2000) has attempted to address the absence of non-propositional entities in relevance theory by suggesting that a concept activates a phenomenological entry, giving access to a feeling response. Nevertheless, if these representations only include 'attitude-beliefs' or the 'attitude-phenomenal states', this chapter argued that metaphors would not alter the hearer or reader's *felt-sense* of the world.

Relevance theory offers a sound pragmatic, conceptual and propositional theory, but to go beyond this an account is needed that explains the way the senses of the reader are awakened. Constantine (cited in Astley, 2008) remarked that poetry should pertain to 'a shock, a quickening of consciousness, a becoming alert to

better possibilities, an extension, a liberation'. The implication is that through the use of metaphor in a poem new perceptual and feeling experiences are created that are felt through the conscious body and mind. The next chapter aims to explain why it is that propositions have taken precedence over non-propositional entities, thus the importance of affective and perceptual meaning.

Chapter three: The precedence of propositions

Pragmatists tend to take it for granted that a meaning is a proposition combined with a propositional attitude ... In other words, they treat the communicator's informative intention as an intention to induce in an audience certain attitudes to certain propositions. (Sperber and Wilson, 1995, p. 57)

3.0 Introduction

At the end of the previous chapter, I explored the possibilities of going beyond relevance theory's propositional account of communication and cognition. Arguably, such an account already exists in the work of Pilkington (2000), except that his ideas suggested that affective states were communicated in a belief or memory format. This chapter argues that an explanation of metaphorical interpretation requires a comprehension process that can make available both *propositional and non-propositional* representations simultaneously in which there is a two-way interaction between them. Such a framework requires an embodied account of cognition in which the region for developing propositions (with its conceptual constituents) is not impervious to the perceptual and affective regions: the places in which non-propositional representations are activated.

The aim of this chapter is to understand why it is that propositions have taken precedence over non-propositional components. As the above quote indicates, it seems to have been taken for granted that propositions should be the object of study. By examining the historical arguments that led to this position, the intention is to point out certain problems, and thus to present an alternative possibility in which non-propositional elements share equal status.

The traditional distinction between propositional and non-propositional representations works along these lines: propositions are abstract mental representations, which describe states of affairs in the world, and can be judged in terms of their truth or falsity (Sperber and Wilson, 1993); non-propositional entities refer to perceptual and affective representations, which cannot pertain to notions of truth (Carston, 2010b). However, this chapter argues that these notions need to be redefined. The claim here is that while non-propositional entities are

not the same thing as a proposition, they can contribute to a propositional representation, which is capable of specifying the conditions under which the utterance would be true. Following Carston (1996a) and Sperber and Wilson (1993), it is the thought behind the words that is capable of being assessed for truth or falsity.

Section 3.1 examines the historical reasons why emotions/feelings were absent from theories about rational cognition, the place for rational thought. Section 3.2 explores approaches to affective meaning within the relevance-theoretic framework. While informative, they seem to hold that non-propositional content is secondary to propositional content. Section 3.3 explores why propositional accounts have taken precedence in linguistics and cognitive science by analysing the differences between Fodor's (1975) Computational Theory of Mind (CTM) and relevance theory's account of inferential procedures. Section 3.4 challenges key aspects of Fodor's (1983, 2000) modularity of mind thesis, which has the consequence that non-propositional entities are absent from the inferential procedures involved in language comprehension.

3.1 A brief history: cognition and emotion

Aristotle is often associated with inspiring what Kafetsios and LaRock (2005) call the 'cognition-first' approach to the human mind. Accounts of this kind view conceptual and rational thought as either the only worthy object of study or as a precursor to emotion. Lazarus (1984) claims that because our cognitive processes enable us to comprehend how and why emotions affect us, they have primacy over our emotional states (Lazarus, 1984). It captures the prevailing view of the twentieth century in which rational thought processes, whether conscious or not, take precedence over our emotional behaviour. Frijda (1986) suggests that experiencing an emotion is a rational decision: we decide if we want to emote. For clarity, experiencing/feeling and displaying an emotion are not to be confused. For instance, the local shop might not be the place to break down in tears, following a particularly bad day at work, but even though I may not display it, I still feel it (Damasio, 2000). As a particular Western cultural trait, people may suppress their emotions, and not even be aware of experiencing them, but the

emotion is still there, above and beyond what our rational minds may consciously desire.

Modern ideas about cognition have been heavily influenced by Turing's attempt to create an intelligent machine (Harnad, 2008). Turing's aim was to test whether a computer could 'think', or at least give the impression that it could through the words that it spoke. It has led to the analogy of the mind as a computer. This view placed emphasis on cognition as an information processing system. Our mental machinery receives inputs, over which certain processes operate, in the production of an output (Broadbent, 1958). An obvious drawback to this view is that it cannot account for the interaction between emotion and cognition. Since computers are not associated with emotions, research largely ignored them last century. The result was a disembodied view of our cognitive processes because emotions/feelings, the route to our bodies and felt-sense of the world, were absent from research into the mind/brain.

According to Kafetsios and LaRock (2005), cognition-first theories were popularised by role functionalist theorists, with whom Fodor (1981) is associated. It is a facet of functionalism in which the mind 'is defined by what it does rather than by what it is – an inter-defined web of causal roles between inputs, inner processes and outputs' (Kafetsios and LaRock, 2005, p. 643). Role-functionalism slightly differs from functionalism in that it acknowledges, for instance, that pain may be caused by physical tissue damage, but that the mental state of pain is explained by the role it undertakes in cognition. In other words, mental states are not characterised by the physical neural states of the body and brain, but by the relation between the causal input to cognition and the mental operations acting over it, in the production of a particular output or mental state.

In Kafetsios and LaRock's (2005) view, role functionalists base their ideas about the function of mental states on Aristotle because he viewed the soul as expressing the function of the body:

The body cannot be the actuality of the souls; it is the soul which is the actuality of a certain kind of body. This is why it is in a body and a body of a definite kind. Hence the rightness of the view that the

soul cannot be without a body, while it cannot *be* a body; it is not a body but something relative to a body. (De Anima II, chapter two, 414a 17-28, cited in Kafetsios and LaRock, 2005, p. 12)

In the above quote, Aristotle accepts a certain causality between a body's matter and its soul (form) while also emphasising that they cannot be the same.

Therefore, our biological bodies are, at least, instrumental in the fact we have emotional states:

It seems that all the affections of soul involve a body- passion, gentleness, fear, pity, courage, joy, loving, and hating; in all these there is a concurrent affection of the body' (Aristotle, De Anima I, chapter one, 403a 16-18, cited in Kafetsios and LaRock, 2005, p. 14)

However, Kafetsios and LaRock (2005) provide a slightly different reading of Aristotle to role functionalists. They claim that Aristotle described emotions as having a biological basis: 'a certain movement of such and such a body part (or part of faculty of body) by this or that cause for this or that end' (De Anima I, chapter one, 403a 26, cited in Kafetsios and LaRock, 2005, p. 14). Aristotle's claims are not too dissimilar from Damasio's (1994) idea of emotions as body state reactions, which suggests a bodily movement of sorts. Their claim is that role functionalists have downplayed the significance of the biological basis of emotions in which our physical bodies are not to be viewed as a mere cause, but instrumental in our experience of them. Hence, this misreading on part of the role functionalists has led to an erroneous division between emotion and cognition.

Wharton (2015) also discusses the way in which emotions have often been subordinated to rational and conceptual thought. He pinpoints this general unwillingness, during the twentieth century, to accept emotions as a subject matter for serious scientific study. Sapir (1921, p. 40) reflected this paradigm of thought in his claim that 'ideation reigns supreme in language ... volition and emotion come in as distinctly secondary factors'. As a consequence, the key analytic philosophers of the day, such as Frege (1884) and Russell (1912), advocated an *ideal* language philosophy in which language was detached from the ambiguities and contextualisation of natural languages. On these formalist accounts, language was understood through logic and predicate calculus, rather than any sensorimotor or affective phenomena. Nonetheless, Van Ginneken

(1907), amongst a small minority, defied these prevailing views by suggesting that emotions underpinned rational thought.

The claim in this thesis is not that neurons behave in similar ways to mental states, nor that cognition can be fully grasped through empirical research into the brain. However, I do want to put forward the view that the mind and brain are causally connected, and that research on the brain can inform research about the mind. Analogously, Damasio's (1994, 2000) account of the biological basis of emotions and feelings might provide insight into the workings of our cognitive processes, just as the sensorimotor basis for concepts in embodied cognition (Barsalou, 1999, 2009; Richter and Zwaan, 2010) can be instructive about the way that utterances are processed.

3.2 Relevance theory: the priority of propositions

This thesis claims that certain predominant historical arguments for separating cognition from emotion have led to a position in which propositions take precedence over non-propositional content during utterance interpretation. This is because propositions are argued to be the type of entity that can be mentally represented in the rational part of cognition whereas emotions/feelings were regarded as linked to the body and so distinct from mental phenomena. More recently, within relevance theory, certain theorists have attempted to address the issue of non-propositional components. However, in their view this type of information is unable to undergo inferential operations of the kind that operate on propositions (Wharton, 2000, 2009; Wilson, 2011b).

Damasio (1994, 2000) claims that non-propositional forms, such as feelings, have the status of a mental representation. By adopting aspects of Damasio's (1994, 2000) theory, this thesis argues that non-propositional content can contribute to a propositional representation during metaphoric comprehension. This view has the consequence that both propositional and non-propositional elements can be the substance of our thoughts. This section explores particular relevance-theoretic accounts of affective meaning, but aims to show how they view propositions as

the only type of input to the deductive device to which inference is applied in determining a speaker's meaning.

Wharton (2000, 2009) explores the affective side of communication through an analysis of interjections, such as *yuk*. He examines the distinction between conceptual and procedural information, as defined by Blakemore (2002), amongst others (Sperber and Wilson, 1993; Scott, 2009). According to Blakemore (2002), some words encode a concept with logical properties that undergo inferential operations whilst others guide the inferential procedures without encoding a mental representation at all. Wharton's (2016) 'idea about procedural meaning is not really related to the issue of mental effort at all; rather that they activate cognitive states in a way that is different from traditional conceptual activation'. Wharton (2000) claims that some language uses communicate an emotional attitude, and so belong to a higher level explicature, such that 'frankly' describes my attitude toward the content expressed in the explicature. Others, like *yuk*, say more about a person's actual emotional state because they do not describe an individual's emotional state, but express it directly. In his view, emotional attitudes activate propositions in a conceptual format whereas certain interjections are procedural in that they guide the hearer towards particular attitudinal descriptions or mental states:

The procedural information encoded in interjections might activate various attitudinal concepts or types of concepts. Under such an account *wow* would not encode a concept that a hearer translates as 'X is delighted'. Instead *wow* activates a range of attitudinal descriptions which involve delight, surprise, excitement. (Wharton, 2000, p. 194)

Wharton (2000) explains that affective meaning, in the case of interjections, procedurally activates these attitudinal descriptions or mental states, which leads to the construction of an array of weak implicatures: propositions. The point is that propositions are still the end point: non-propositional forms become propositional.

Gutt (2013) observes that on the relevance-theoretic account feelings cannot be ostensively communicated for the very reason that what is made manifest during

the course of conversation needs to be propositional in nature (see chapter two for a definition of manifestness). As an alternative, Gutt (2013) suggests that feelings are activated and act as a guidance to comprehension. Feelings, thus, lead to the construction of propositional representations: weak implicatures, in a similar way to Wharton's (2000) procedural approach. Gutt (2013, p. 6) proposes that they act as 'an additional cognitive effect in the form of an implicated conclusion'. Their role is to act as part of the machinery to enable the representation of propositional forms.

Wilson (2011b, p. 4) argues that non-propositional information in the form of 'clues- perceptual, conceptual, sensorimotor, kinesic, emotional' can act as input to the deductive device, but will not feature in the output. Non-propositional information does not undergo inferential operations because it cannot be mentally represented and so contribute to a proposition, which is capable of being truth evaluable. In accordance with Gutt (2013), these non-propositional cues activate or inhibit certain contextual assumptions that lead to an implicated conclusion. If a concept (see chapter five) is to be conceived from an embodied perspective, it can simultaneously activate representations in a propositional and non-propositional form, suggesting that the non-propositional forms are more than mere cues.

If it is the case that both propositional and non-propositional representations undergo inferential operations and so feature in the output of the deductive device, it calls for a redefinition of the relevance-theoretic notion of manifestness, which I propose is:

A mental representation with propositional *and non-propositional* content is manifest to an individual at a given time to the extent that this individual is disposed to draw (non-hypothetical) inferences from it.

Sperber and Wilson's (1986/1995, 2014) definition has it that only propositions can act as input and output to the deductive device whereas the updated definition in this thesis claims that non-propositional entities can contribute to a proposition, and so can be made mutually manifest during the course of interpretation. This is

because an embodied view of cognition sees a concept as being able to give access to these non-propositional entities during cognitive processing. Example (47) illustrates the added role of non-propositional representations through an extract from the novel 'A God in Ruins'. Wartime pilot Teddy, narrates his final moments as his Halifax bomber, hit by German fire, is plummeting towards German soil:

47) 'Moments left, Teddy thought.

A handful of heart beats,

That was what life was.' (Atkinson, 2015, p. 522)

Looking at it simplistically, the second line is a noun phrase, which suggests that 'Teddy has a handful of heart beats left before his heart stops beating and he dies'. It rests on the assumption that each of us have a certain number of heart beats in our lives. Hence, it may communicate:

48) a) Explicature: a HANDFUL* of HEART BEATS*, that was what LIFE* was.

b) Contextual assumptions: image of a beating heart; the sound and feel of a heart beat; certain feelings and experiences associated with our hearts; the biological role of the heart in keeping us alive; the sadness and fear associated with the end of our lives.

c) Contextual implication: our lives are no more than our beating hearts and our biological processes (combined with a felt-sense and sound of a beating heart, and possible sadness).

In view of the example in (48), it would be possible for the addressee to imagine a world in which when facing death, life is conceived simplistically as nothing more than a biological phenomenon, which conjures the felt-sense of our bodies and a certain sadness alongside propositional representations with logical

properties. Both propositional and non-propositional forms are equally important in the derivation of the speaker's intended meaning.

Wilson (2012) claims that there is a difference between 'comprehension', which relates to the recovery of what we take a communicator to have intended to communicate, and the broader processes of 'interpretation', which go beyond that. Her point is that there is no clear cut-off between the two, so that we can be more or less confident about the assumptions a communicator intended us to entertain. For instance, if I asked someone what time the next bus is due, they may respond that 'there is a strike today'; it is possible for me to infer that 'there are no buses today' as an implicature. However, a conclusion that goes beyond what the stranger intended, part of the broader 'interpretation', is that I will have to get a cab if I want to make the concert in time. The argument put forward in this thesis is that non-propositional entities are part of 'comprehension' since they are part of what the communicator intended. This is because it is necessary to access these types of representation in order to understand what the intended meaning is. In other words, these non-propositional elements can also undergo inferential operations in the same way as propositions.

3.3 Understanding the primacy of propositional accounts

Talk of propositions dates back to Plato and Aristotle in their interest in the truth and falsity of our statements (Nuchelman, 1973). More recently, Sperber and Wilson (1986/1995) have placed an emphasis on propositions as the objects of our thoughts (propositional attitudes). They are instrumental in their theory of communication and cognition since to understand a speaker's intended meaning, the addressee must construct the proposition expressed by the speaker's utterance. For Fodor (1975, 1980), thoughts can express sentences (utterances on the relevance-theoretic view) since they are both constituted by syntactical properties, enabling one to be mapped onto the other. The result is that thoughts are conceived via relations of form, leaving embodiment out of the picture.

3.3.1 The differences between relevance theorists and Fodor

This section broadly aims to describe Fodor's (1975, 1980) computational theory of mind, and the way in which relevance theory has adopted certain key aspects, but also vastly altered how inference is to be understood.

According to Fodor (1975), humans do not think in the language they speak. Thought occurs in a different format: 'the language of thought' or, as it is sometimes known, 'mentalese'. According to Fodor's (1981) Computational Theory of Mind (CTM), every constituent of thought can be represented by a formal symbol in the mentalese representation, and it is these symbols that enter into computations and thinking processes. Fodor (1981) refers to 'sentences' in the language of thought and claims that both these and linguistic sentences have a syntax and a semantics. Fodor and Lepore (1991, p. 333) define this further in their Isomorphism Principle: 'if a sentence S expresses the proposition P, then the syntactic constituents of S express the constituents of P'. This has the consequence that the proposition expressed is mapped onto natural language sentences since they share the same structural components. Propositions are the object of a thought or a propositional attitude, such as belief, hope, desire and so on. Therefore, the Isomorphism Principle is a way for certain linguists to explain how language can express our thoughts: in a propositional format.

The CTM is centred on the assumption that to think or to have a certain mental state is to be in a relation to a representation, the content of which is a proposition (Fodor, 1980). For instance, I could have the thought or hope represented in (49):

49) I hope that tax credit cuts will be abolished.

The conceptual constituents of the proposition in (49) undergo certain computational processes that, for Fodor (1980), are symbolic and formal. They are symbolic for the fact they are 'defined over representations', and they are formal since the relation between thought and representation is 'in virtue of (roughly) the *syntax* of the representations' (Fodor, 1980, p. 64). His emphasis on mental representations having a syntactical form is due to his view that syntax is

what makes computations possible. It is also based partly on his belief that mental states do not have access to semantic properties: ‘truth, reference and meaning’ (Fodor, 1980, p. 64). In other words, the meaning of mental state does not rely on its referents or the environment since the content of a mental state is determined by the relation it holds to a mental representation that is differentiated by its formal properties only (Fodor, 1980). Fodor (1980) is more concerned with how these mental contents are represented to ourselves, outlining his adherence to a form of solipsism. For Fodor (1980), therefore, beliefs are opaque (that is, non-referential) to account for the difference in type-identical beliefs (in referential theories of meaning): X is the Morning Star and X is the Evening Star. If both referents refer to Venus, mental states that have semantic properties would be unable to distinguish between them.

Fodor (1980) endorses the analogy of the mind as a computer in which certain processes operate over input symbols to produce output symbols. More specifically, similar to Turing’s machine, the tape that enters the machine is working memory, which you can search and change. The machine has access to ‘oracles’, corresponding to the sensory organs, which can write new information on the tape. This new information derived from the environment has formal properties only (Fodor, 1980). The information processing system is a neat analogy for abstract propositional objects, yet it misses the extent to which such symbols are embodied and can have a sensorimotor and affective character. For instance, Richter and Zwaan’s (2010) experimental research provides key evidence as to how sensorimotor representations contribute to conceptual constituents. Their account presumes that mental concepts are extracted from the sensorimotor system, such that there is a relation of resemblance between them (see chapter five for a full discussion of their work). Fodor’s (1980) formal approach to language is informative, yet he is unable to account for the way that conceptual symbols can resemble the world (Barsalou, 1999, 2009).

Although the CTM allows thoughts to generate other thoughts through logical relations of entailment and contradiction, it also has serious flaws. Sperber (2001) also disagrees that thought is just the result of syntactical processes being defined over mental representations:

:

Such computations are irredeemably local, and cannot take into account contextual considerations. Yet, our best thinking (that of scientists) and even our more modest everyday thinking are highly sensitive to context. Fodor suggests various ways in which the context might be taken into consideration in syntactic processes, and shows that they fall short, by a wide margin, of delivering the kind of context-sensitivity that is required. He assumes that, if the computational theory of mind is correct, and if, therefore, there are only local operations, global contextual factors cannot weight (sic) on inference, and in particular cannot contribute to its rationality and creativity. Therefore the computational theory of mind is flawed. (Sperber, 2001, p. 53)

Sperber and Wilson (1993) state that the aim of their book ‘Relevance: Communication and Cognition’ was to take up Fodor’s challenge that nothing serious can be said about inference. Their intention was to incorporate global contextual factors into the comprehension procedure to allow for the fact that our words, and the concepts they activate, rarely align with our intended meaning: the underdeterminacy thesis (Carston, 2002).

Sperber and Wilson’s (1986) early work sought to develop a spontaneous type of inferential processing that was distinct from Fodor (1975, 1980). The relevance-theoretic version originally remained in what Fodor (1983) defined as the undifferentiated region of the central processes (see section 3.4). Their version was not conscious and reflective, as Fodor (1975, 1980) presumed, because they viewed utterance interpretation as an automatic process that occurred below the level of consciousness. Their subsequent work made a significant move to modularise these central regions, in particular the specific deductive device (Wilson and Sperber, 2002). The device enables inferential communication through non-demonstrative inference. Non-demonstrative inference, for relevance theorists, is the process of forming and confirming hypotheses as to a speaker’s meaning. Consider the following example about the relevance-theoretic view of inference:

- 50) 'This danseur who is considered larger than normal is smashing stereotypes.' (Huffington Post, 2016)

To infer the speaker's meaning in (50), the hearer/reader would access a range of contextual assumptions or hypotheses about the meaning, derived from the input in (50) and previous encyclopaedic knowledge. There is no ultimate proof of this meaning, only an assumption that the first relevant hypothesis is the one that best fits the Communicative Principle of Relevance. It may derive the following implicated conclusion:

- 51) This danseur who is considered larger than normal is challenging the stereotypical skinny dancer frame in a way that is proving successful.

In the relevance-theoretic account, deductive inference plays a key role in the initial stages of the inferential process. The entire process is non-demonstrative since the conclusions are not guaranteed even if the premises are true (which, it could be argued is impossible to ever know), and because the later stages are not deductive. Hence, these non-demonstrative rules 'assign a degree of confirmation to the assumptions based on the evidence' (Sperber and Wilson, 1995, p. 68).

Just as Sperber and Wilson (1995) seek to extend the CTM to include context, this thesis seeks to expand the notion of manifestness to include non-propositional forms so that they are part of what a communicator and addressee make manifest during the course of communication.

3.3.2 The secondary status of non-propositional entities

It seems that anything embodied is viewed with a certain suspicion within traditional linguistics and the more philosophical disciplines. Embodied cognition means that concepts have access to non-propositional elements (Richter and Zwaan, 2010), rather than solely formal properties, as Fodor (1980) presumes. If concepts can activate perceptual and motor information, it suggests that knowledge can stem from our sensory perception, in a manner analogous to Empiricism. For Fodor (1980), it would fall under the trap of type-identical

mental states, illustrated in section 3.3.1 (the Morning Star is the Evening Star). Rationalism, often regarded as the alternative to Empiricism, regards the senses as fallible. It places an emphasis on our innate architecture and rational computational procedures. This thesis aims to find a midway point between the formal and logical aspects of cognition and the embodied elements of the mind/brain (see chapter five for further discussion).

Fodor (1981) defines himself as a nativist, which is tantamount to saying he is a rationalist. As such, perception, which is called the sensorimotor systems in embodied cognition (Richter and Zwaan, 2010; Barsalou, 1999, 2009), is given secondary status in human cognition since it is a means to a rational end. Emotions, it seems, play an even lesser role during communication. Fodor's (1981) view reflects the arguments discussed in section 3.1 about the separation of emotions from cognition.

Fodor and Pylyshyn (1988) do not deny that mental concepts/symbols are derivative of the biological brain; it is simply not in their interest to explain the connection between these different levels of representation: the psychological (mental concept) and the biological. For these authors, our conceptual capacity for thought is not isomorphic to the lower levels of the neural brain:

No one expects the theory of protons to look very much like the theory of rocks and rivers, even though, to be sure, it is protons and the like that rocks and rivers are 'implemented in'. (Fodor and Pylyshyn, 1988, p. 45)

The analogy is sufficient to explain their view that that the structure of the neurons as a biological foundation to a concept is not informative about its function in cognition in much the same as it is for protons and rocks. Their claim is that molecules and neurons cannot be representational, so they cannot be intentional or about something, which, in certain respects, this thesis agrees with.

These authors have a different explanation for the sensorimotor system in which the neural structure is informative about function:

For example, the input to the most peripheral stages of vision and motor control must be specified in terms of anatomical projected patterns (of light, in one case, and of muscular activity in the other); and independence of structure and function is perhaps less likely in a system whose input or output must be specified somatotopically. (Fodor and Pylyshyn, 1988, p. 46)

Why is it that the structure of the brain and its related cognitive function is imperative for explicating perception and movement, yet remain redundant in any explanation of how precisely a mental concept relates to the biology of the brain? If the cognitive processes of utterance interpretation are not viewed as entirely logical, but ‘specified somatotopically’ in the way that concepts are claimed here to be grounded in the sensorimotor system, these embodied representations could contribute to metaphoric interpretation.

I want to argue that the relationship between language and thought does not solely consist in structured, syntactical representations, but that it is also inextricably linked to the sensorimotor systems that serve them; systems in which ‘independence of structure and function is perhaps less likely’. Conceptual thinking employs concepts that are based in the sensorimotor system, and which are not separated and segmented from it (see chapter five). Such a view would allow for the neural structures that subtend them to be informative about their function. Barsalou, an embodied cognition theorist, (2012, p.243) also argues for a ‘parallel structure’ between the linguistic and the conceptual system, based on the ‘combinatoric and recursive mechanisms’ that allow for an infinite construction of sentences from a finite resource of words. It is a simplified version of Fodor’s (1980) claim about the syntactical relationship between language and thought. The crucial point is that, for Barsalou (2012), thought maps onto language predominantly via its embodiment, but also by certain mechanisms of form: balancing the rationalist and empiricist divide.

3.4 Explaining the absence of non-propositionality

In this section, I argue that Fodor’s (1983) influential modularity of mind theory has contributed to a linear or rather feedforward model of cognition. Perceptual sounds are parsed in the input systems and deliver a conceptual format to the

central systems. Language is decoded and then inferentially developed, a model followed by Sperber and Wilson (1986/1995). The consequence of his view is that perceptual and affective information cannot be added to a proposition during utterance interpretation. By contrast, this thesis argues for a new framework in which there is two-way interaction between perception (sensorimotor systems) and conception. This section aims to analyse Fodor's (1983) ideas, and suggests a loosened version of a module, which enables non-propositional representations to enter into the inferential procedure.

3.4.1 Fodor's modularity of mind: the input systems

The input systems are domain-specific. They include all the sensory channels (vision, sound, touch, taste and smell) and a language module which constructs phonological and syntactical representations, and maps a word onto a concept. For instance, the auditory module may provide access to further computations that allocate certain grammatical categories to the incoming sounds, or ascertain the particular rhythm or intonation employed. Fodor's (1983) argument is that these input stimuli to the auditory module for language are too complex to be performed by a general-purpose processor. This is evidenced by work in Haskin's Laboratories, according to Fodor (1983), in which experiments show differences in the way that linguistic and non-linguistic sounds are received. That is to say that the computations that process speech 'operate *only* upon acoustic signals that are taken to be utterances' (Fodor, 1983, p. 49). Wharton (2009, forthcoming) also explores the different ways linguistic, paralinguistic and non-linguistic behaviours are interpreted (differences reflected in contrasting neurological pathways).

This thesis supports the idea of a module as domain-specific since, following Spivey (2007), it refers to anatomical differences in neural tissue in which separate regions respond differently to distinct forms of stimuli. For instance, there may be a region in which the neural tissue reacts to syntactical constructions while another area is sensitive to the sounds of a language. However, domain-specificity for Fodor (1983) does not mean a particular brain location as he was

interested in the role or function of mental representations and states, rather than the brain states that give rise to them.

Another significant point is that, according to Fodor (1983), the modularised input systems are automatic and beyond conscious control. Owing to their unconscious and encapsulated nature, it is only their output in a conceptual format which is able to influence our thoughts and behaviour: ‘we often show that aspects of the subject’s behaviour are sensitive to the information it can report’ (Fodor, 1983, p. 59). In other words, the information is conscious if it is conceptual, and only these types of representations can alter behaviour. In Fodor’s (1983, p. 58) feedforward processing view, perception only serves as a route to conceptual reasoning and thinking: ‘the idea would be that only quite high-level representations are stored, earlier ones being discarded as soon as the subsystems of the input analyzer gets the goodness out of them’. The consequence is that the non-propositional (sensorimotor, affective or physiological) representations are forgotten, and so play no role in cognition, precisely what this thesis is arguing against.

Where the account offered in this thesis predominantly differs to Fodor (1983) is over his claim that modules are informationally encapsulated. In other words, modules in the input systems (language and perception) cannot have their internal workings accessed by other informationally encapsulated modules, nor by the Fodorian (1983) central systems or rather the place for conceptual thought. As a result of his modular architecture, the inferential development of propositional forms (explicature and implicature on the relevance-theoretic approach) does not have access to non-propositional forms in the input system. As Fodor (1983, p. 66) argues, ‘the operations of the input systems are in certain respects unaffected by such feedback’ where feedback refers to the information coming from the central systems. Sperber notes (2001, p. 51) that encapsulation reflects the way that a module can only process a specific type of input to produce the right output; otherwise, it would have ‘unrestricted access’ to the whole system, creating an overload on its capacity. In relevance-theoretic terms, a perceptual sound is processed in the input systems and delivers a concept to the deductive device, but that these are separate processes, and that any understanding of the

concept occurs post-modular. The claim made in this thesis is that this is too simplistic, and that there is a two-way interaction between our conceptual processes and the input of a sound or sight.

Conversely, Fodor (1983) acknowledges situations in which informational encapsulation does not hold. Warren's (1970) phoneme effect demonstrates the way a person thinks they hear <legislature>, but, in fact hears <legi (cough) lature>, with a cough obscuring the /s/¹². In this instance, Fodor (1983) argues that our conceptual reasoning intervenes so that the missing /s/ is filled in. If it is the case that conceptual reasoning can give access to representations in the perceptual modules on occasion, why is it not the situation for all language processing? Fodor (1983, pp. 73/74) defends his claim in that there is a possibility for a 'correction of input analyses by top-down information flow' but that this is different from claiming that 'the top-down effect is *internal* to the input system'. If it were occurring post-perception in the conceptual part of cognition (central systems), surely it would be conscious? Carston (1996b) describes a module as a kind of 'dumb reflex' because, in the same way as perceptual illusions (see below), processes that take place within a module are isolated from our conceptual knowledge about the world. She refers to the Fodorian view in which syntax is 'impenetrable', but to which she remains undecided for word recognition (see chapter six for further discussion) (Carston, 1996b).

If word recognition processes possibly have access to our conceptual knowledge, is it also possible for syntax or sight? This thesis suggests that what is required is a loosening of the notion of a module, which drops the classification of the strict information encapsulation part of the definition. It does not mean that it is no longer a module, but follows the definition of a module from the neuroscientific literature (Spivey, 2007). Conceived in this way, it allows for specialised information to be developed in particular locations, but that non-propositional information can contribute to propositional forms in the conceptual regions or what Fodor (1983) terms the central systems (see below) (Kutas, 2006; Coulson, 2006).

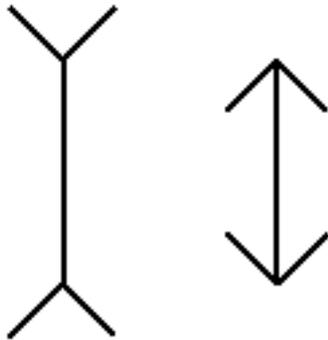
¹² // indicates a sound.

Evidence from Heron, Doane and Scott (1956) supports this suggestion. They asked English participants to look through a tachistoscope and focus on a central point. They were informed that their task was to recall as many letters as possible as they appeared at intervals at a fraction of 1/100th of a second (Heron, Doane and Scott, 1956). The experiment produced random variations of the letters: left, right or centre. However, the participants mostly perceived the letters followed an order of top-left to top-right or bottom-left to bottom-right perception of the letters. Their eyes interpreted the left-to-right order of reading English even though it was, in fact, random (Heron, Doane and Scott, 1956). Similar evidence was found with Hebrew participants who interpreted the random sequencing of letters to mirror the Hebrew order of reading: right to left (Heron, Doane and Scott, 1956).

This thesis, following key ideas from Coulson (2006) (see chapter four), argues that conceptual knowledge about reading rules can gain access to visual perception (in the input systems, Fodorian (1983) terminology) and affect the way that this visual information is processed in the sensory cortex. If it were post-modular, according to Fodor's (1983) definition of modularity, the process would have to be accessible to consciousness. It could be that such knowledge about reading rules has become modularised because it is unconscious. Horsey (2006) argues that cultural knowledge can become automated in the way that I automatically and unconsciously know which way to read. However, this is exactly the type of conceptual knowledge that resides in the conceptual regions, not the input systems. It suggests that we have automated knowledge in the conceptual regions of mind, which can gain access to visual perception in the construction of what we think we see.

Many philosophers of language cite the Müller-Lyer illusion to lend weight to their views on modularity in the demonstration of how our conceptual knowledge cannot influence what we perceive (Sperber, 2001). The illusion consists in two arrows, as seen below:

Figure two: The Muller-Lyer illusion



Source: Bermond and Van Heerden (1996)

Despite subjects knowing the lines are of equal length, the illusion is that we still view one as shorter than the other due to the direction of the arrowheads: conceptual thinking does not override perception. Spivey (2007) asserts that the illusion demonstrates that top-down feedback from the conceptual system can influence vision (see below for examples of evidence), but, in some cases, it cannot completely override it, nor is it desirable as we would only see what we want to see (Spivey, 2007):

The top-down influences that are suggested by the ubiquitous feedback projections seen in the neuroanatomy should, at best, be capable of subtly modifying perceptual representations—not summarily rewriting them. (Spivey, 2007, p. 120)

Moreover, Spivey (2007) claims that the illusion seems to lessen after the realisation that they are equal length, which, unfortunately, does not seem to be corroborated by other researchers. It may be that the two-way interaction between perception and conception, proposed in this thesis, can sometimes be inhibited and sometimes activated (see the Hollow Face illusion below for evidence to support this claim).

Hence, the Müller-Lyer illusion presents an interesting conundrum. Spinelli (2005) cites the instance of perceptual completion in which, say, a piece of black coal in bright sunlight appears dark black despite the brightness of the light.

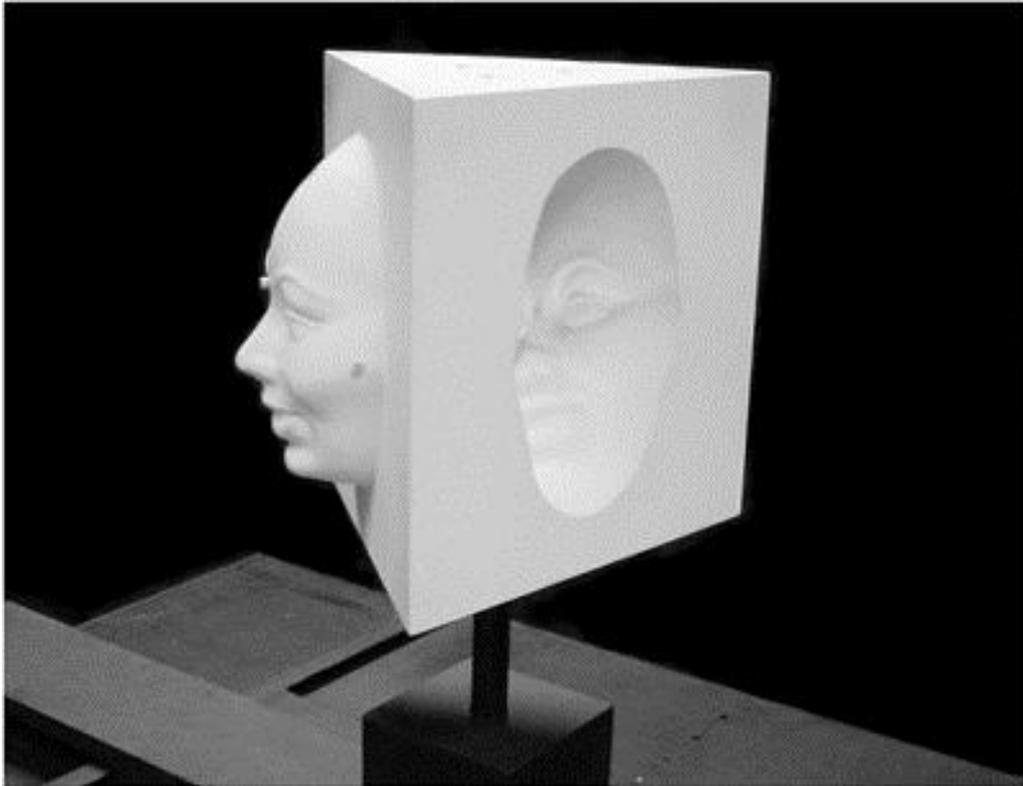
Further that the piece of coal appears darker than a piece of white paper in shadow in spite of the opposite being true. While the Müller-Lyer is a case of conscious disintegration between perception and conception, Spinelli's (2005) example is one of unconscious integration: the conscious mind is not aware. It could suggest that the former is a case of perception inhibiting access to conceptual processes while the latter illustrates how conception is able to gain access to perception in changing how visual information is processed. Even though the arguments against modularity are by no means conclusive, there is sufficient evidence to doubt a strict adherence to informational encapsulation.

Moreover, there are illusions which seem to demonstrate that our conceptual knowledge is instrumental in the forming of perceptions below the level of consciousness. The hollow face is an optical illusion in which a concave (hollow) face is seen as a convex one because that is how faces normally appear to us (Gregory, 1970). Even though the mask is concave, our conceptual knowledge prevents us from seeing the mask as hollow. This is possibly because the link between conception and perception could be activated enabling conceptual knowledge to unconsciously alter the actual visual processing of the face in the sensory cortex to what we are accustomed to seeing. The concave face on the right-hand side of figure three below demonstrates this effect.

Kroliczak *et al.* (2006) suggest that there are two visual streams: a ventral one leading to conceptual thought, and a dorsal one leading directly to motor actions. Their experiments involved participants having to flick certain targets off the concave face. Although they consciously perceived it as the convex one, their motor actions responded to the real face: the concave one. For Kroliczak *et al.* (2006), their results illustrate a disassociation in the dorsal stream between perception and action, but not in the ventral stream to conceptual thought. In other words, our conceptual processes have influenced the processing of the face, yet this information has been encapsulated or isolated from our motor actions. Evidence of this nature suggests that what is going on in perception, language and conception is far more complex than previously presumed. If it is the case that access between conception and perception is inhibited or activated on different occasions, exactly how and when this works remains unclear and is beyond the

scope of this paper. The aim here is to raise doubts about a strict adherence to information encapsulation.

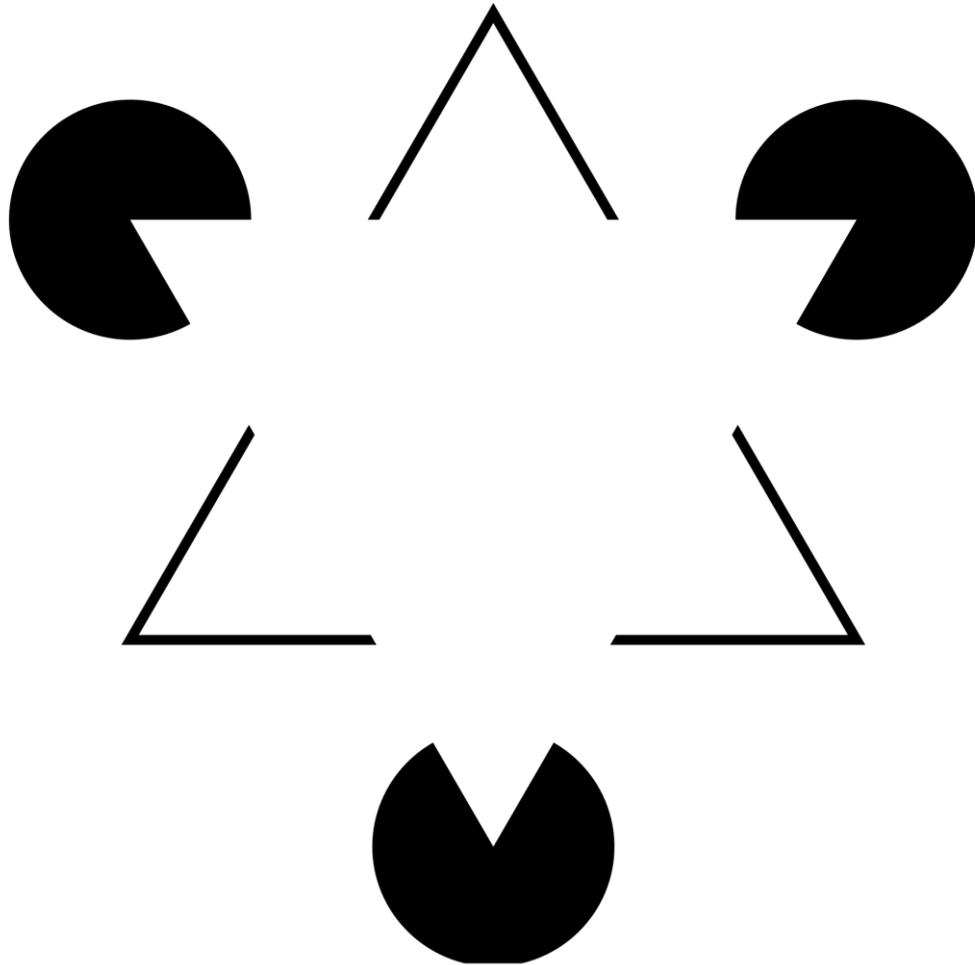
Figure three: The hollow face illusion



Source: Kroliczak *et al.* (2006)

The access between conceptual knowledge and the sensory cortex also seems to apply to the Kaniza illusion in which a graphic with three black circles with corners cut out of them give the impression of there being a white triangle in the centre (Schumann, 1900). Our conceptual knowledge fills in the gaps of meaning (Coulson, 2006):

Figure four: The Kaniza illusion



Source: Symplicis (2015)

Our cognition is much more flexibly interconnected than the modularity of mind thesis allows for. For instance, it has been shown that the function of one module in deterioration can be replaced by another. Pallas and Sur (1993) and Von Melcher, Pallas and Sur (2000) demonstrated that ferrets whose visual nerve was rerouted from the visual to the auditory cortical region were still able to create a visual field that responded to space and orientation. It suggests that although we have innate dispositions for certain abilities: perceptual or conceptual, these capabilities can be re-wired to a different modular location and still function after interaction with the environment. Some may interpret these findings as demonstration of the fact that no matter what you do to the brain, the mind

persists. However, the argument here is that the brain has rewired, enabling the mind to experience visual perception anew from a different region.

Whilst it is true that many of our physiological and automatic processes are predominantly below the level of consciousness, the perceptual/unconscious and conceptual/conscious dichotomy is oversimplified by Fodor (1983). Damasio (2000, p. 54) claims that ‘metabolic regulation, reflexes ... pain and pleasure, drives and motivations’ are largely unconscious. I do not have to consciously think I must metabolise my food, and neither I am aware of it, but I may feel the process of digestion. For him, it is not possible to separate emotions (primary and secondary) from pain and pleasure, reward and punishment and other such drives and motivations. Moreover, since our feelings can become conscious, it allows ‘emotion to permeate the thought process through the agency of feeling’ (Damasio, 2000, p. 56). Therefore, under his view, feelings (and their body state reactions) and conceptual reasoning have the capacity to become conscious, not that every thought or feeling does. I could become aware that I am feeling slightly uncomfortable in someone’s presence. The feeling could highlight to me that I am experiencing a body state reaction of a tenseness in my gut, bringing my attention to my heart beat, or rather my basic life regulations. Feelings, thus, are the conscious bridge to the body, and so elements which Fodor (1983) assumes are unconscious may not necessarily be so. The same applies for metaphorical utterances, in which non-propositional (sensorimotor, affective and physiological) representations have the potential to become conscious.

It is possible to comprehend the basis for Fodor’s (1983) arguments when situated in the time in which they emerged. He contributed to a movement in which language could be explained cognitively, rather than behaviourally: a massive leap forward for the seventies and eighties. The behaviourist movement consisted in understanding utterances and the world as a product of a stimulus and a response. Neisser (1967) changed the behaviourist paradigm by arguing for an intermediate representation: the mind. As such, Fodor (1983) was a key figure in the implementation of the so-called ‘cognitive revolution’, popularising the information-processing account of the mind/brain. The difference was that our sensory input routed via our mental processes in the production of behaviour

(language). Spivey (2007) argues, however, that the dualism inherent in behaviourism is merely repeated in cognitive science's stimulus-to-interpretation model of cognition. The mistake, in Spivey's (2007) view, is the attempt to understand the mind/brain as a linear stage-based processing system (a feedforward system), rather than as a parallel model enabling two-way interactions. By adopting a parallel-type model even though the situation is not that clear cut, it would enable propositional and non-propositional processes to occur simultaneously (see chapter six for a fuller discussion).

Spivey (2007) presents evidence, consistent with claims in this thesis, about parallel processing in which concepts give access to sensorimotor and affective information, instead of being informationally encapsulated from them. This thesis claims that these non-propositional components conjoin with our encyclopaedic knowledge stores attached to a concept, enabling a description of states of affairs in the world. For instance, as a child I link the word <strawberry> with the concept STRAWBERRY through my contact with one. I learn of the bright red colour, the white spots and green stalk. I learn of the sweet and sharp taste as I eat one. I am aware that I need to dangle the strawberry over my mouth by the stalk in order take little bites. The concept STRAWBERRY, therefore, retains this information, stored at different locations in the mind/brain. The colour information will be represented in the visual regions whilst the angle of my arm will be in the motor part (Damasio *et al.*, 1996). These disparate representations are integrated into a cohesive whole along with my encyclopaedic knowledge, such as 'strawberries grow in England', thus activating the related word. For example:

When the concept of a given tool is evoked (based on the activation of several regions which support pertinent conceptual knowledge and promote its explicit representation in sensorimotor terms), an intermediary region becomes active and promotes (in the appropriate sensorimotor structures) the explicit representation of phonemic knowledge pertaining to the word form which denotes the given tool. (Damasio *et al.*, 1996, p. 503)

On Damasio *et al.*'s (1996) account, the words and their encoded conceptual counterparts are distributed in disparate regions relevant to their sensorimotor basis (see chapter five for a comprehensive review of concepts). His work

suggests that cognition is not strictly informationally encapsulated, and that non-propositional entities contribute to our conceptual mental representations.

3.4.2 Fodor's modularity of mind: the central systems

The input systems are different to the central systems. The currency of the latter is concepts, rather than percepts. For Fodor (1983), the central systems fix belief from the conceptual output of the input systems combined with memory under the processes of non-demonstrative, rational inference (Fodor, 1983).

Fodor (1983) defines the central systems as an undifferentiated region in which inferential procedures work over conceptual mental representations. For him, encapsulated central systems would be problematic. He argues that the central systems could be presented with a thought {p, [If p, then q]}, which acts as input in the production of q, a further thought. If the wider system knew that q was false, but that the belief system was modular, it would have no access to that knowledge, and so would be unable to erase such a belief (Fodor, 2000). In his view, modularity is limited in its scope, and so unable to account for the capacity of wider reasoning abilities.

By contrast, Sperber and Wilson's (2002) later work argues that non-demonstrative inference does not require a domain-general capacity of the type that emerges from Fodor's (1983) work, but a modular one:

Verbal comprehension presents special challenges, and exhibits certain regularities, not found in other domains. It therefore lends itself to the development of a dedicated comprehension module with its own particular principles and mechanisms ... such a metacommunicative module might have evolved as a specialisation of a more general mind-reading module. (Sperber and Wilson, 2002, p. 4)

Sperber and Wilson's (2002) notion of a module is somewhat looser than Fodor's (1983): domain-specific but not encapsulated. The benefits are that it exhibits the 'fast and frugal heuristics' necessary for spontaneous inference (Gigerenzer and Todd, 1999, p. 6). The domain-specific comprehension module or rather 'metacommunicative' module is a product of the more general mind-reading

module or theory of mind (TOM). The latter has a more general capacity to attribute intentions in the explanation of behaviour.

On Sperber's (2001) account, each module has an input and an output, but also accessible resources that each one competes for (Sperber, 2001). Such resources incorporate notions of saliency, cognitive benefits and costs: key tenets of relevance theory. Rather than 'a higher-order computational process' initiating inferential procedures, Sperber (2001, p. 54) claims, cognitive benefits and costs are able to select accessible contextual assumptions without 'compromising the computational character of the devices'.

While Sperber's (2001) definition of a comprehension module seems more promising, he still favours the idea that the input systems are strictly informationally encapsulated, ignoring certain evidence which suggests that conceptual knowledge can give access to non-propositional components. By challenging aspects of the Fodorian (1983) definition of a module, it enables non-propositional entities to be mentally represented and so contribute to the proposition expressed by an utterance. More specifically, this thesis claims that both propositional and non-propositional content are able to undergo the inferential procedures in the domain-specific comprehension module, in accordance with notions of relevance. Put simply, the new framework offered in this thesis presents a parallel-type view of cognition (see chapter five), which enables non-propositional elements to be part of what Wilson (2012) terms 'comprehension'. That is to say that non-propositional elements are not to be resigned to the broader processes of 'interpretation', in which their effects are unintended, but that they are crucial for fleshing out the speaker's intended meaning during metaphoric interpretation.

3.5 Conclusion

The chapter has argued that an account of metaphoric interpretation necessitates a process in which propositional and non-propositional information is computed in parallel. To enable such a view, it requires a model of cognition in which there is the possibility for a two-way interaction between perception (the sensorimotor

systems) and conception. Contrary to Fodor (1983), it has the repercussion that non-propositional elements can contribute to the proposition expressed by the utterance.

This chapter aimed to show how there has been a paradigm of thought in which propositions (constituted by concepts) have played a more dominant role in philosophical and linguistic enquiry than non-propositional elements. It has resulted in the situation in which non-propositions remain secondary or simply not part of explanations about communication and cognition. Certain relevance theorists, interested in affective meaning and communication, also place non-propositional content into a subordinate position to propositions. This is because, on their account, only propositions can be made mutually manifest during the course of communication, leaving non-propositional information to act as a resource in constraining the search for relevance. By synthesising aspects of embodied cognition with relevance theory, it enables a parallel view of cognition and the simultaneous processing of propositional and non-propositional elements. In the next chapter, I explore what it means to think by employing non-propositional constituents into the flow of our thoughts.

Chapter four: Thinking in images

4.0 Introduction

Davidson's (1978) theory of metaphoric meaning claims that metaphors only *intimate* imagistic and affective representations, and so cannot alter belief or describe a state of affairs in the world. On his approach, metaphors do not interact with conceptual thought processes in the way literal language uses do. This conflicts with one of the main tenets of this research: metaphoric interpretation simultaneously activates propositional and non-propositional representations. The central theme of this chapter is that mental imagery and other non-propositional representations play a role in thought: as well as concepts, thought involves sensory, affective and physiological constituents.

The broader aim of this chapter is to show how metaphoric interpretation not only includes mental imagery, but that it is necessary for the 'comprehension' of the intended speaker meaning (Wilson 2012). The account blends elements of Davidson's (1978) imagistic theory of metaphoric understanding with, on the one hand, aspects of the relevance-theoretic account and, on the other, theories of embodied cognition. This synthesis of ideas suggests that cognition is structured in such a way that it is possible to employ imagistic, affective and sensorimotor representations in our thought processes (Barsalou 1999, 2009). The type of cognition proposed here is one in which there is a two-way interaction between conceptual thought and the perceptual and affective regions of the mind (Coulson, 2006).

Pilkington (2010,) considerably altered his earlier research discussed in chapter two. His claim now is that mental imagery has a 'sui generis' status alongside percepts and concepts in cognition, acknowledging that certain non-propositional components have an equal status with conceptual ones (Pilkington, 2010, p. 168). He further claims that imagery is able to contribute to the comprehension process of metaphors in a way that surpasses his previous ideas on the phenomenal aspects of communication in which feelings were expressed as beliefs or remembered emotions:

Metaphors may, in the more creative cases, offer a way not only of evoking imagery and feeling but also of communicating more fine-grained phenomenal state representations than could be captured by standard phenomenal concept terms. (Pilkington, 2010, p. 168)

If metaphors are able to communicate non-propositional (imagistic) representations more directly, it seems to acknowledge our experience of imaging certain entities while processing metaphoric language uses. However, the claim in this thesis is a little stronger since the new framework it offers views mental imagery and other non-propositional representations as fundamental aspects of the interpretation process, which undergo inferential operations in the derivation of a speaker's intended meaning. On this account, imagery is similar to vision, but it is qualitatively different to a concept with logical properties. Imagery can contribute to a propositional representation because it can be constructed sequentially: component by component, rather than holistically as one package (Kosslyn *et al.*, 1988).

Section 4.1 explores Davidson's (1978) wholly non-propositional account of metaphor. Section 4.2 proposes merging aspects of Davidson's (1978) imagistic account with the ad-hoc concept approach, outlined in chapter two. Section 4.3 analyses key debates in cognitive science that condemns mental imagery to an epiphenomenal status. Section 4.4 examines McGinn's (2004) account of the qualitative differences between vision and mental imagery. Section 4.5 argues for a parallel model of cognition in which imagery is viewed as a construction from previously perceived visual percepts and able to contribute to mental representations in cognition. Finally, section 4.6 presents Damasio's (2000) embodied theory of cognition in which emotions are the route to the body proper.

4.1 An imagistic account of metaphor

Consider the first part of the metaphorical expression in (52):

52) 'If your life is a leaf that the seasons tear off and condemn,
they will bind you with love that is graceful and green as a stem.'
(Cohen, 1967)

On Davidson's (1978) account, the literal meaning of the word <leaf> activates a mental image. The image encourages an appreciation of likenesses between <leaf> and <life>. The same process applies to the words <seasons> and <tear off>, which leads the hearer to notice the possibility that the fresh youth and innocence of life could be subject to cruelty or suffering. For him, it is the mental imagery, accessed by the literal word meanings, that provides the route to interpretation, not a proposition. One of the controversies inherent in his work is the claim that metaphorical uses do not communicate a proposition in the way that ordinary language does: they convey an impression of sorts. On the account provided in this thesis, the example in (52) suggests that there is a communicative intention behind the words in that it conveys a complex thought and feeling about life. Further, to comprehend the conditions under which it would be true, it requires the capacity to imagine a world in which an aspect of leaves could represent people's lives that undergo suffering. Despite certain drawbacks to Davidson's (1978) work, it is a unique approach that has been influential in shaping the ideas in this thesis. This section examines his account with a view to highlighting that an explanation of metaphoric interpretation requires a framework in which both propositional and non-propositional representations undergo inferential operations.

Davidson's (1978) principal claim for metaphor is that its manner of interpretation differs vastly to ordinary, literal language. Davidson (1978) suggests that there are two routes to language interpretation: metaphoric within imagination and literal under belief. In this way, Davidson's (1978) work suggests that the beliefs involved in literal language, or rather the conceptual thoughts, are isolated from the processing of the non-propositional elements that arise in metaphoric language uses. Davidson's (1978) position conflicts with one of the main tenets in this research in which metaphoric interpretation requires the simultaneous processing of propositional and non-propositional content.

For Davidson (1978), metaphors only communicate non-propositional effects, feelings and images, the things that literal language cannot communicate: ‘in fact there is no limit to what a metaphor calls to our attention, and much of what we are caused to notice is not propositional in character’. Lepore and Stone lend support to Davidson:

We concede that a metaphor succeeds, if it does, from the cognitive effort an audience puts into exploring the similarities suggested by the metaphorical imagery, but we deny that this derives from recognizing a speaker’s intention to convey propositional content. (Lepore and Stone, 2010, p.6)

This suggests that metaphorical language neither accesses the proposition expressed by a speaker’s thought, nor undergoes inferential operations in the ordinary way. Metaphors intimate ‘visions, thoughts and feelings’ (Davidson, 2006, p. 218). These ‘visions, thoughts and feelings’ are those non-propositional elements of metaphorical meaning that are central to the ideas in this thesis

Davidson (1978) does not appear to be saying that we think in these non-propositional terms, however, as that would place metaphorical interpretation in the conceptual realms of higher cognition¹³. It is more that these ‘visions, thoughts and feelings’ are inspired by the metaphor. Exactly what he means remains unclear; the suggestion seems to be that metaphorical language creates an impression whereas the thinking implicit in ordinary language involves belief formation in accordance with the way the world is. In the Fodorian (1983) view, thinking requires particular computational processes, defined over propositions (composed of conceptual constituents). For Davidson (1978), the implication is that concepts and propositions are the wrong tools with which to understand metaphor: as he puts it (2006, p. 223) ‘a picture is not worth a thousand words, or any other number. Words are the wrong currency to exchange for a picture’. As pictures cannot be paraphrased by words, metaphors cannot be understood by propositions (conceptual), as with ordinary language.

¹³ It is ‘higher cognition’ if it is situated in the conceptual regions of the rational mind or what Fodor (1983) terms the central systems.

Carston (2010a) agrees with Davidson (1978) in that certain literary metaphors are not interpreted via the construction of a strongly intended proposition, but by the literally encoded concepts (or words on the Davidsonian (1978) account) and the images they activate: there is no explicit communication. Poetic metaphors are able, on her view, to convey imagery and a message with a range of weakly implicated propositions (Carston, 2010a). This is different to the framework offered in this thesis, which proposes that many novel metaphors can be communicated explicitly via the construction of an ad-hoc concept. It argues that metaphors often communicate non-lexical thoughts, which is why the non-propositional elements of interpretation are essential during interpretation. It could be a certain image or feeling that the speaker intended the addressee to mentally construct in representing their metaphoric meaning.

Davidson (1978) turned current ideas in linguistics on their head in considering what metaphors mean. His simple tenet was that metaphors are not in the business of expressing a secondary or figurative meaning as inferential pragmatic accounts (Sperber and Wilson, 1986/1995) might propose. For Davidson (2006, p. 209), metaphors do not mean anything beyond their literal meaning, nor do they alter cognition in the way that ordinary sentences do: ‘metaphors mean what the words, in their most literal interpretation, mean, and nothing more’. Instead, they ‘intimate’: ‘metaphor is the dreamwork of language and, like all dreamwork, its interpretation reflects as much on the interpreter and the originator... the act of interpretation is itself a work of the imagination’ (Davidson, 2006, p. 209). Hence, there are two systems with two different currencies: concepts for literal language, under the umbrella of belief, and percepts/images for non-literal expressions, within imagination. Proposing two routes to language interpretation contrasts with the view of embodied cognition upheld in this thesis. That is, a view in which the conceptual regions, including the domain-specific comprehension module, give access to perceptual and affective information (see section 4.3), enabling non-propositional representations to contribute to the proposition expressed.

One key aspect of metaphor, for Davidson (1978), is about noticing a new or unexpected likeness between two or more things. It is these similarities between

entities that have prompted the misguided view, in Davidson's (1978) mind, of the secondary meaning. Davidson provides the example of:

- 53) 'Tolstoy was "a great immortalising infant".' (Davidson, 2006, p. 211)

On pragmatic accounts in which metaphors provide access to a new figurative meaning or ad-hoc concept (Sperber and Wilson, 2008; Wilson and Carston, 2008), there is an extension of the lexically encoded concept INFANT to broaden its domain of reference (Davidson, 1978). The broadened concept INFANT would extend to include adults that behave in infantile ways. Davidson (1978) argues that if INFANT were to apply to Tolstoy in the normal sense, Tolstoy would have been an infant in real life. That is to say, 'if we are to think of words in metaphors as directly going about their business of applying to what they properly do apply to, there is no difference between metaphor and the introduction of a new term into our vocabulary: to make a metaphor is to murder it' (Davidson, 2006, p. 212). By introducing a new meaning, Davidson (1978) argues that the noticing of likenesses that occurs between the literal domains <Tolstoy> and <infant> do not pertain.

For Davidson (1978), language can be understood by its use, which he leaves unexplained as rather a vague concept. Nonetheless, language use constitutes the basic thrust to his approach to metaphors, which is guided by the 'imaginative employment of words and sentences' in their literal sense (Davidson's, 2006, p. 210). By way of example:

- 54) Helen bounded haplessly into love.

To illustrate his account, the use of the verb <bounded> would provide access to the physical movement entailed by the word, and be mapped against the way Helen approaches relationships. The mental imagery evoked by the word about, say, approaching with speed and without much forethought will encourage in the reader/hearer an unexpected comparison with Helen's rushing into relationships too soon. For him, it is the imagination that governs the process of noticing

through the use of the verb <bounded> and the noun <love>, and which intimates these feelings, thoughts and mental imagery.

I have interpreted ‘visions’ as mental imagery due to his analysis of the example below:

55) ‘He was burned up.’ (Davidson, 2006, p. 215)

Davidson (2006, p. 215) writes that ‘when the metaphor was active, we would have pictured fire in the eyes and smoke coming out of the ears’. He suggests that through the use of the metaphor, there is an intimation of effects that are not propositional in nature, but pertain to ‘visions’ or ‘feelings’. Its use would trigger a search for these common features between person and fire, and produce the mental image that captures the non-propositional understanding of anger in a way that seems to communicate more than the word <angry>. Lepore and Stone (2010, p. 7) echo his ideas on mental images in that ‘on confronting the metaphor, an audience must participate in exploring the implications of its imagery’.

His account of metaphor-as-use, however, seems vague and unable to exactly specify the mental processes involved and how they might work. This criticism is echoed by Lepore and Stone (2010) who state that ‘giving a specific locus for metaphor in pragmatics and psychology, not just in an undifferentiated wastebasket of ‘use’, gives us a conceptual framework ... for thinking about metaphor in precise new ways’. While Davidson (1978) shows an understanding that stored words/concepts in our minds differ to the way they are used in different contexts, his approach is by no means able to offer the sophistication that relevance theory can in accounting for the inferential procedures involved. If metaphors are an expression of non-lexicalised thoughts, as this thesis proposes, it demonstrates the way in which a vehicle concept maps onto a target one in the communication of thoughts that go beyond the scope of the words in their literal sense. As such, the intended speaker’s meaning is developed not through this ‘undifferentiated wastebasket of “use”’, but through the inferentially constructed ad-hoc concepts as part of the explicit meaning. The new framework offered here takes from Davidson (1978) the idea that metaphors are understood via their

imagery and feelings, but, in contrast to him, these elements can contribute to a propositional representation and undergo inferential computations during interpretation.

In short, the insight in Davidson's (1978) ground-breaking article is to emphasise that metaphors encourage the hearer to see something in a way that is different to grasping truth conditions. He draws a distinction between 'seeing as' and 'seeing that' where the metaphor invites 'seeing' one thing 'as' another through the literal expression (Davidson, 2006, p.224). 'Seeing as' is not equivalent to 'seeing that'. Lepore and Stone's (2010) use of 'imagine A as B' for metaphors follows the same line of argumentation. McGinn (2004) claims that a proposition is a representation that takes an intentional object in the way in which <that> introduces the object in question. McGinn's (2004) views echo Fodor's (1975) claim in which a propositional attitude (thought) takes a proposition (expression of thought) as its object. However, for Davidson (1978) and Lepore and Stone (2010), 'seeing as' does not seem to have an intentional object in the same way, and this is the difference.

The pitfalls in positing an account that segregates imagination from belief are summarised by Green (2013):

For now we have to believe in a 'distinctive cognitive mechanism' that is used only for metaphor, and is a very particular part of our psychology. What mechanism is that? It's a particular kind of imagination by means of which we use our knowledge of one domain to get a perspective on something else. By now we've all but posited a metaphor module. (Green, 2013, p. 15)

Green (2013) is pointing out that seeing imagination as distinct might suggest an imagination module for the processing of metaphors, in a Fodorian (1983) sense. For him, accounts such as Davidson's (1978) and Lepore and Stone's (2010) have the negative consequence that metaphor is a new kind or category that has unique mechanisms and processes, separate from other forms of language (Green, 2013). Green (2013) argues that metaphor should be part of a more general psychological computation and process. Following Sperber and Wilson's (1986/1995) continuity hypothesis, this thesis claims that different forms of

language use (literality, approximations, hyperbole and metaphor) undergo the same mechanisms and procedures (see Rubio-Fernández, Wearing and Carston (2015) for a discussion on recent adaptations to the continuity hypothesis)

The sole purpose of a metaphor, for Davidson (2006, p. 224), is to communicate an essence of beauty and aptness: ‘the beauty or aptness, the hidden power, of the metaphor itself’. This thesis claims that it is not so much about beauty, but that we derive a certain sense of pleasure in viewing unfamiliar juxtapositions, even if they present a dark or uncanny feeling about the world. Lepore and Stone (2010, p. 7) argue that the beauty of a metaphor is to be appreciated, but not understood in a speaker-meant way: ‘the goal of the utterance is for this appreciation to occur, not for specific information to be exchanged, and interlocutors do not coordinate on the information itself or derive it directly by intention recognition’. This thesis questions their argument that it is not possible that part of the appreciation is derived from the capacity to infer a speaker’s communicative intention (see chapter six for further discussion). Metaphoric interpretation on the account offered here is the attempt to understand another’s creative construction through our own subjective range of resources: perceived, felt, conceptualised.

An example of how Lepore and Stone’s (2010) notion of appreciation might work, following a non-propositional account is:

56) The music held her.

The literal encoded concept HELD activates the mental imagery of a person holding another person, which is taken in conjunction with MUSIC as if the music is performing this action. The use of the concepts and the ensuing mental imagery leads to a noticing of likenesses between MUSIC and HELD creating a sense of the music physiologically and emotionally holding the female in question. Rather than the speaker making their meaning mutually manifest (as on the relevance-theoretic account), Lepore and Stone (2010) claim that the metaphor activates an appreciation of the physical and emotional sense of the music holding the female, activated via the shared imagery of holding. It is the appreciation of the non-

propositional aspects that inspires the beauty of the metaphor, all of which is imagined, rather than believed.

This thesis argues that it is clear from example (56) that metaphors do not communicate a message about a literally true state of affairs, but that they do communicate a truth of sorts about the thought that prompted the creative use of language. In contrast to Lepore and Stone (2010), the argument in this thesis is that it is possible to both appreciate, or rather gain a sense of pleasure from, and infer an intended propositional content from a metaphorical utterance at the same time.

4.2 Merging the imagistic and the ad-hoc concept accounts of metaphor

For Davidson (1978), metaphors do not communicate propositions, so they lack truth conditional content. By contrast, the meaning of a literal sentence is captured by its relation to truth and belief (Davidson, 1967). Metaphors communicate imagery and feelings, and so are not related to truth or belief since these are facets associated with literal language use and the rational side of cognition. However, he does acknowledge that metaphors convey a truth of sorts. His position contrasts with the ad-hoc concept account (see chapter two) proposed in this thesis in which metaphor is classed as an instance of loose use and so is truth evaluable in the normal way (Sperber and Wilson, 2008; Carston, 2002, 2010b). This section proposes that Davidson's (1978) account would benefit from merging with the ad-hoc concept approach to metaphor to enable metaphors to be truth evaluable.

Carston's (2010a) recent contribution to the debate suggests two metaphoric processing routes: the ad-hoc and the literary. Her literary route reflects aspects of Davidson's (1978) proposals about metaphoric interpretation. She succinctly captures how familiar metaphors are interpreted as explicit propositions through the construction of an ad-hoc concept with few non-propositional effects while poetic examples (literary) are communicated predominantly via non-propositional means with a range of weak implicatures (Carston, 2010a). The difference with

the literary route is that it only gains access to the literally encoded concept in cognition, and so does not contribute to the construction of ad-hoc entities.

However, it remains unclear how she envisages these two routes playing out in cognition. It is possible that there is some mechanism that inhibits the ad-hoc concept construction on detecting a particularly poetic metaphor. If processing is incremental (word-by-word) as most theorists suggest (Marslen-Wilson, 1973), metaphoric processing under her approach would possibly be a system of trial and error; if ad-hoc formation is a fast online operation, as Carston (2010a) presumes, there would no doubt be frequent occasions in which the system begins the creation of ad-hoc concepts, realises it's a poetic example, and exerts more effort into reconstructing the entire sentence into the literary mode of processing.

The similarities in their approach to novel metaphor has led both Carston (2010a) and Davidson (1978) to claim that such poetic examples of metaphor are not truth evaluable. This thesis follows Carston (1996) and Sperber and Wilson (1993) in that it is the thought behind the words that is evaluated for truth. Hence, it proposes that metaphoric uses of language can construct a proposition, containing non-propositional elements, and it is the entire representation in its expression of a particular thought which can be judged for its truth or falsity about the world. In illustration, I use an example of my own:

57) Emily was the punk rock of the group.

Loosely following a Davidsonian (1978) account, the literal image of the word <punk rock> is used to represent EMILY. It demonstrates the way certain qualities of the literal meaning of <punk rock> would be extrapolated to stand for and understand EMILY better. Aspects of the indifferent and anarchic attitudes associated with punk rock music could be applicable to the identity of the female. However, the metaphorical vehicle <punk rock> requires interpretation alongside other conceptual components within the sentence that enter the domain-specific pragmatics module (in relevance-theoretic terms), such as the noun EMILY and the verb WAS. The pragmatics module for relevance theorists or the belief domain for interpreting literal language for Davidson (1986) represents the

relations between these conceptual constituents and their underlying propositional attitude in the determination of the belief behind the sentence (Sperber and Wilson, 2002).

However, if metaphors do not express a proposition, nor specify a figurative meaning, they deviate from the normal route of interpretation. Hence, how would Davidson (1978) account for non-literal and literal language being processed in unison if imagination and belief are responsible for their interpretation? Carston (2010a) argues that they are processed as one chunk of information, rather than word-by-word, which suggests that the system would postpone processing in the ordinary incremental way. It is possible that Davidson (1978) views them as two systems that work alongside each other. In the relevance-theoretic model truth conditional and non-truth conditional elements can be processed simultaneously during utterance interpretation (Blakemore, 2002). For Iten (2000), the non-truth conditional discourse connective <even though> does not describe states of affairs in the world, but rather indicates the incompatibility between two clauses:

58) 'For my last birthday he bought me a pink scarf, even though I told him that I hate pink.' (Iten, 2000).

On the relevance-theoretic model, both truth-conditional and non-truth-conditional aspects of meaning are subsumed under the same comprehension procedure. The claim I make here is not that metaphoric uses are non-truth-conditional since they reflect a thought which is describing a state of affairs in the world. I can describe the world through my conceptual understanding and/or I can describe the world by how I feel or perceive it, and that is the difference. These non-propositional entities aid in the construction of a speaker's meaning to understand how they view the world. They are not about the relations between clauses. As such, it is the thought and not the literality of the utterance that is assessed for truth.

This thesis proposes a framework in which processing occurs along a continuum between a poetic metaphor to a literal language use, following Rubio-Fernández, Wearing and Carston's (2015) weakened continuity hypothesis. On Davidson's

(1978) account, there may be cases in which a particular language use cannot be neatly categorised into either literal or metaphorical, or between the ad-hoc and the literary on Carston's (2010a) approach. For instance, a new use of a familiar metaphor, say, 'blind in love', may or may not count for an instance of a novel metaphor, leaving it unclear whether it would be ad-hoc or literary. This thesis claims to synthesise imagination and belief by incorporating aspects of a parallel model of cognition in which propositional and non-propositional representations can be processed simultaneously. There is no cut-off point between how novel or familiar metaphors are processed, but that novel ones may elicit more non-propositional elements during processing because there is an unfamiliar juxtaposition of concepts in cognition.

Davidson (2006, p. 218) asserts that: 'if a sentence used metaphorically is true or false in the ordinary sense, then it is clear that it is usually false'. Consequently, sentences containing metaphors, for him, can never express a truth about the world. Hence, I could say to you:

59) You nestled into that conversation with ease.

My aim is to use the metaphorical vehicle concept NESTLE to communicate qualities of how easily you joined the conversation and seemed at home talking about the subjects in question. I am making a comment about the world through the metaphor; more to the point, I am making a comment about you in the world. Thus, Davidson's (1978) division in cognition between imagination and belief, images and concepts, and intimation and propositions is questionable. It is not to deny that these differences exist, but it seems unlikely that they are mutually exclusive.

It is not that Davidson (1978) denies that metaphors can communicate a message; it is just not a propositional one, relating to truth and belief:

Since in most cases what the metaphor prompts or inspires is not entirely, or even at all, recognition of some truth or fact, the attempt to give literal expression to the content of the metaphor is simply misguided ... this is not to deny that there is such a thing as

metaphorical truth, only to deny it of sentences (Davidson, 2006, p. 218)

His remarks above suggest that metaphors can specify a truth of sorts. More specifically, metaphors express not truth, but ‘aptness’ (Davidson, 2006, p. 224), which Carston (2010a, p. 297) defines as an ‘accuracy in capturing an experience or feeling’. However, the vague use of ‘aptness’ seems to suggest that non-propositional entities can never be precise or intentional, and so part of what Wilson (2012) terms ‘comprehension’. It indicates, instead, that novel metaphors mostly reside in the domain of the broader ‘interpretation’ process in which the addressee takes responsibility for drawing conclusions that were unintended, but relevant to them. Of course, the latter is possible for all types of communication, but the argument in this thesis is that if novel metaphoric interpretation includes non-propositional elements, it provides a way of communicating non-lexical thoughts and feelings about the world with more precision.

What is at stake is how one perceives language and meaning. Davidson (1967) endorsed a semantic theory of compositional meaning in which the meaning of a sentence is given by the meaning of its constituent parts. Meaning was not specified by what a representation picked out in the world, but by its truth conditions (Davidson, 1967). As such it is the sentence that is the bearer of truth. Under such a view, it is easy to see why Davidson (1978) would view the literal words as not being able to be assessed for their truth or falsity. Rather than focussing on the sentence as the truth conditional element, this thesis focuses on the intentional thoughts behind the metaphorically-used words. The non-lexicalised thought conveys a truth, but the literal words do not.

Moreover, Carston’s (2002) underdeterminacy thesis claims that the linguistic sentence or semantics does not equate with the informative and communicative intention of a speaker’s meaning. In contrast to Davidson (1978, 1986), she argues that sentences are rarely capable of producing a truth of any kind since they are sub-propositional. She further claims that the truth conditional content of an utterance relates not to the encoded constituents, but to the thought behind the words: ‘as relevance theorists tend to argue, the proper domain of a truth

conditional semantic theory is thoughts/assumptions (or, at least, their propositional forms)' (Carston, 1996a, p. 13). Hence, by extending their notion of propositional forms to include non-propositional elements, this thesis claims that novel metaphoric uses can be truth evaluable. As such, Carston (1996a) claims that we can agree or disagree with the fact that BILL is a BULLDOZER*, so what is essentially false about the claim is the encoded conceptual constituents in the logical form, not the proposition expressed by the utterance. Therefore, the fact that Davidson (1978) sees metaphor as essentially false is because he is a semanticist, looking at what the words mean, rather than any inferential form of communication.

Returning to the example in (59), the possible consequences of Carston's (2010a) approach to metaphor, developed from Davidson (1978), is that there is either: no explicature at all (60a), a schematically represented one (60b) or one that is represented and not communicated (60b):

60) a)

b) Jamie [] into conversation we were having at midday yesterday with ease.

c) Jamie NESTLED into conversation we were having at midday yesterday with ease.

It is doubtful that relevance theorists would endorse the option in (60a). The second example (60b) demonstrates the lack of an ad-hoc concept in the explicit form since the implicatures are constructed directly from the encyclopaedic entry of the lexically encoded concept NESTLED from the output of the input systems: the logical form of the utterance. Alternatively, it may contain the encoded form of the concept as in (60c), but that is not what is communicated. If there is an empty, schematic or non-communicated category, there is no explicit truth evaluable element. Sperber and Wilson (1986/1995) claimed that the encoded concept was explicitly expressed on their original account, but it would not be truth evaluable.

Even though thoughts may be rarely identically or literally communicated, the ad-hoc account claimed that the propositional form of the utterance was closer to the propositional form of the thought (Carston, 2002). As previously mentioned in chapter two, it meant that the area of interpretative resemblance was between the encoded concepts in the logical form of the utterance and the ad-hoc concept in the proposition expressed by the utterance, and not between utterance and thought. It has the consequence that it is the words that vaguely resemble our thoughts, but due to the inclusion of non-propositional representations, metaphors can be more closely aligned to their source: the thought. It is not that we can ever grasp an utterer's intangible thought with exact precision, but that an amalgamated approach is sufficient to enable effective communication through considerations of relevance. This thesis suggests a fourth option for the example in (59):

- 61) Jamie NESTLED* into conversation we were having at midday yesterday with ease.

The difference to Carston's (2002) original ad-hoc account to the one being offered in this thesis is that the ad-hoc concept links to non-propositional properties, which can be added to the proposition expressed, all of which undergo inferential operations. This conjoined mental representation can describe a state of affairs in the world and be assessed for truth. This is because it represents not only the speaker's conceptual understanding of the world, but also the way they feel and perceive the world.

It is suggested that the point about metaphors not being truth conditional is that addressees receive a different aspect of meaning, as opposed to a propositional one, which is constituted by concepts and their logical properties. However, this thesis proposes that cognition is parallel, and so non-propositional aspects are able to be added to the proposition expressed by the utterance. An example of metaphors and their truth conditionality is:

62) Zachary is a hurricane of whims.

The speaker communicates the forcefully changeable nature of Zachary's moods and desires. During interpretation, a construction of affective representations is possible in relation to a hurricane, such as the overwhelming feelings involved in witnessing a hurricane. It might also evoke a mental image of its immensity that could be transposed onto the moods and desires to gain a sense of their absolute physical force. Extending Davidson's (1978) ideas to those in embodied cognition, the thrashing sound of the hurricane could also contribute to comprehending the nature of the moods further (Barsalou, 1999, 2009; Richter and Zwaan, 2010). These non-propositional elements contribute to the communication of an explicit proposition which is truth evaluable:

63) Zachary is subject to strong and forceful changes of moods
(overwhelming feelings, mental image and sounds of a hurricane).

It may also communicate a broad range of weak implicatures:

- 64) a) Zachary is a liability.
b) Zachary cannot be trusted in certain situations.
c) Zachary is unpredictable (feeling of being overwhelmed).
d) Zachary is hard to be around.
e) Zachary is controlled by his emotions (sense of chaos).

More to the point, example (62) could be uttered in response to the question in (65):

- 65) Would Zachary be a good candidate for the role of bomb disposal expert?

The utterance in (62) would, therefore, cast a few doubts as to the nature of Zachary's ability in the position. These doubts might also be said to be propositional and truth evaluable in the normal way because they are an expression of the speaker's thoughts, and which also include feelings, images and sounds as part of the mental representation. The addressee of (62) could metarepresent the thought behind it, and be able to imagine a world in which it is not a good idea for Zachary to take the position. He/she can meta-represent how the speaker relates to the world around: logically (propositional) and in an embodied way (non-propositional).

4.3 Cognitive science on mental imagery

If imagery is part of metaphoric comprehension, as Davidson (1978), Carston (2002, 2010a) and Pilkington (2002, 2010) presume, why has it remained peripheral to linguistic and philosophical theory for so long? The following debate from cognitive science in the eighties demonstrates how mental imagery was practically debunked as either non-existent or pertaining to a propositional format, similar to discrete linguistic symbols (Dennett, 1981; Pylyshyn, 1981; Kosslyn, 1980). The point of agreement between all these cognitive scientists was that mental images were representational, or rather that they are 'of something' in the world (McGinn, 2004; Rey, 1981; Dennett, 1981; Pylyshyn, 1981; Kosslyn, 1980). The main aim of this section is to focus on the points of contention: how mental imagery is represented in cognition, and whether it can interact with other conceptual and propositional representations in the processing of speaker meaning.

We are all capable of reporting the experience of forming a mental image in the mind. Rey (1981, p. 117) refers to this as an 'image-experience'. As a result, mental images were thought to conform to a picture in the head, a view that can be traced back to Descartes (1664). The picture theory of mental images basically states that these mental representations are picture-like in that their surfaces and

spatial proportions are similar to a photograph or painting. Although not an advocate of the theory, McGinn describes mental images in these terms:

When I form an image of X, it is thought, I form a mental picture of X, which is then the “immediate object” of my imaginative consciousness. This inner picture represents X’, so that I am immediately conscious of X, but it is the picture itself that I most directly see with my mind’s eye’. (McGinn, 2004, p. 61)

The ‘mental picture’ is the object of imaginative consciousness or the mind’s eye.

Pylyshyn (1973) argues that the picture theory leads to infinite regress. If the mind’s eye is necessary to interpret the mental image, what is interpreting the mind’s eye? It would require another mind’s eye to interpret the first one and so on (Pylyshyn, 1973). By contrast, Kosslyn and Pomerantz (1981) claim that mental imagery is not the result of a homunculus looking at a screen of images. Rather than viewing the mind as having an executive controller operating on discrete mental representations, it is possible to consider mental processing as continuous and working as a result of the collective neuronal activity in the brain (Churchland and Churchland, 1998; Spivey, 2007).

Kosslyn (1980) lends support to the picture-in-the-head hypothesis in the development of his own quasi-picture theory. Mental imagery, under his view, has a special cognitive status, able to contribute to our thinking processes. It is structurally and functionally similar to vision, implying that they share notions of space, proportion, colour and shape with the referents they represent (Kosslyn, 1980). For him, the information associated with the mental image is stored in deep representations in long-term memory, in the form of propositional representations (Kosslyn, 1980). A visual buffer, in the form of an interface, enables the surface construction of the mental image such that these propositional memories are made available to consciousness (Kosslyn, 1980). On activating a mental image, it passes through the buffer and is transformed into a qualitatively different type of entity in cognition (Kosslyn, 1976). The quasi-picture theory does not claim that mental images are exact replicas of external pictures (paintings and photographs), but that the experience of imaging resembles the experience of seeing due to similar brain structures: ‘at some point in the data-

processing stream, images and percepts have a common format, which differs from the format of representations of other (e.g., linguistic) sorts of information' (Kosslyn and Pomerantz, 1981, p. 154). 'A common format' for vision and imagery is endorsed by research in psycholinguistics and neuroscience (Barsalou, 1999; Ganis, Thompson and Kosslyn, 2004).

Evidence given during the seventies to support the quasi-picture theory included Segal and Fusella's (1970) findings on the way participant's visual signal deteriorated as a result of simultaneously seeing and imaging the same object. If I both look and create a mental image of my coffee pot, the imagery can block the visual perception. If imagery can overlap and extinguish vision, their evidence suggests they utilise similar structures or processes. Copper and Shepard's (1973) participants were shown a letter of the alphabet, rotated to a degree so that it was not in the normal upright position. The task was to judge whether the letter was in mirror image or normal form. The participant response time increased as the degree of orientation away from the upright position increased. The supposition is that they were mentally imaging the rotation of the letter to the upright form to be able to make the judgement proficiently. The intention was to highlight how imagery is similar to vision and can be used in our thinking processes. We can all recount times we have had to mentally image an entity or event to truly understand it such that if I am to drive to a certain destination in town, I do not rationally conceive the route, I image it.

Despite the fact that Kosslyn's (1980) approach to imagery anticipated later neuroscientific and psycholinguistic research, it was widely criticised by certain philosophers. Dennett (1981) proposed that mental imagery bore no resemblance to a picture in the painting or photographic sense. For him, it is subjective and intentional. Rey (1981, p. 120) elaborated: 'it is not obvious that mental images can literally be said to have any visual properties whatsoever'. This is because the visual properties associated with vision, such as light and colour, spatial properties of depth, proportion and orientation are not seen as part of the mental image. Dennett (1981, p.129) presumes a mental image only exists on the retina, and once the representation travels up the optic nerve, it is "lost" and replaced with information about characteristics of this pattern'. The 'characteristics of this

pattern' would no doubt constitute a propositional format with the aim of denying that mental imagery has its own cognitive character.

The difference between these theorists is that Dennett (1981) and Rey (1981) are solely focussed on a psychological interpretation of the mind/brain, yet Kosslyn (1980) is also interested in biological structures. This thesis adopts Cosmides and Tooby's description of the mind/brain:

Brain and mind are terms that refer to the same system, which can be described in two complementary ways - either in terms of its physical properties (the neural), or in terms of its information-processing operation (the mental). The mind is what the brain does. (Cosmides and Tooby, 2000)

Their view enables empirical research on the brain to inform an understanding of the mind and vice versa. Accordingly, when Kosslyn and Pomerantz (1981) talk of a 'common format', they not only specify biological structures, but also the psychological function of how vision and imagery resemble each other in cognition in the construction of an 'image-experience'.

For Dennett (1981), there is no actual picture-like image existing as an object, which is also true of vision. The argument developed in this thesis accords with Dennett (1981) here, except that it further endorses a biological level in which mental imagery is also viewed as a causal consequence of certain neural structures which leads in some way to a mental perception of imagistic representations (Coulson, 2006; Kutas, 2006). As Barsalou (1999, p. 582) puts it, 'there is little doubt that the brain uses active configurations of neurons to represent the properties of perceived entities and events'. Although it is hard to evidence a neural account of perceptual experience directly, studies can show that activity in the brain, when imaging, correlates to certain psychological processes (Barsalou, 1999, 2009; Ganis, Thompson and Kosslyn, 2004). This thesis does not argue for a fully reductionist account, but rather one in which structure can be informative about function (see chapter three). There is no direct transmission from world to mind, but there is a mind that interprets incoming data from the underlying neural structures to produce perception and conception.

Dennett (1981) prefers to define the 'image-experience' in a descriptive way. He presents the hypothetical task of describing a tall man with a wooden leg. A descriptive approach removes the necessity to represent his having a certain hair colour or a particular pair of trousers because not every detail is important: imagery is indeterminate. Under picture theory, Dennett (1981) claims, when representing a tiger and its stripes, for example, the imagery should accurately represent the specific number of stripes. The reason, in his view, is that picture theory argues for an exact replica between object and mental image. Description theory overcomes such obstacles by simply providing the description 'numerous stripes' (Dennett, 1981, p. 131). However, the quasi-picture theorists (Kosslyn, 1980; Kosslyn and Pomerantz, 1981) did not claim that a mental image is like a picture at all, but that image experiences resemble seeing ones. Moreover, modern accounts of vision do not suggest that the process of seeing is anything like a picture either; instead, vision and imagery are mental constructs: an amalgamation of incoming perceptual data and world knowledge (Coulson, 2006, Damasio, 2000).

Pylyshyn (1981) also argues against the picture-in-the-head hypothesis due to its theoretical claim that mental images are raw uninterpreted sensory patterns. For Pylyshyn (1981), mental imagery is stored as meaningful, interpreted and propositional representations. The repercussion is that if part of the mental image were missing in the mind, it would be a meaningful aspect, not a geometric part, such as a torn corner from a photograph (Pylyshyn, 1981). For Pylyshyn (1981), imagery is the result of a meaningful interpretation process, not just the raw incoming sensory data. From this, he concludes that image is the wrong term for a representation that has no pictorial qualities. According to him, these so-called images are structural descriptions, constructed from concepts. It entails that imagery, as with concepts, has an arbitrary referential relation to the objects it represents, rather than one of resemblance (see section 4.5). Although this thesis argues against vision and imagery as structural descriptions in a propositional format, Pylyshyn (1981) has a valid point regarding their 'meaningful interpretation'. If mental imagery is a type of perceptual representation employed within conceptual thought, as is claimed in this thesis, it cannot consist just of raw, uninterpreted sensory data.

As Barsalou (1999) claims, concepts can provide access to perceptual data, and in forming our perceptions, these concepts also interpret the perceptual input: recall the perceptual completion example in which a piece of black coal is *perceived* as darker in bright sunlight than a piece of white paper in the shadows. This is because, for him, ‘the neural systems common to imagery and perception underlie conceptual knowledge as well’ (Barsalou, 1999, p. 583). It presupposes that there is a connection of neurons from different brain regions which unite in the forming of our perceptual and conceptual experience of the world. This thesis borrows the assumptions from embodied cognition in which the mind is a product of the brain, even if neurons cannot be equated with intention and aboutness. As such, viewing mental imagery as purely propositional without its own *sui generis* status runs into problems because it dismisses the fact that it is qualitatively unique, and reduces our intuitions of ‘image experiences’ during metaphoric interpretation to being solely conceptual and logical.

4.4 Visual experience: seeing with the eyes or with the mind’s eye

In contrast to Dennett (1981) and Pylyshyn (1981), McGinn (2004) views mental imagery as having its own unique status in cognition, which is more in line with the claims made in this. McGinn’s (2004) ideas on mental imagery are discussed below because he captures the subtle differences between imagery and vision, and raises the idea that imagery alone is not able to capture a metaphorical meaning in contrast to Davidson (1978). However, where the account offered in this thesis differs is that McGinn (2004) views vision and mental imagery as dichotomous. This thesis proposes that imagery and vision share a common format, and so rather than being qualitatively different, they differ by a matter of degree. The fact that imagery and vision are quantitatively distinct is consistent with recent psycholinguistic evidence (Coulson, 2006). Vision, for Coulson (2006), is constructed from a two-way interaction between the conceptual and perceptual regions, in a similar way to imagery. Her views are compatible with the ideas put forward in this thesis since imagery is able to contribute to our propositional and conceptual thinking processes.

4.4.1 McGinn on imagery and vision

According to McGinn (2004), vision and imagery are two aspects of visual experience: seeing with the sensory organs and seeing with the mind's eye. For him, perceiving an object is the polar opposite of imaging one. Vision is the result of processing the information derived from the peripheral sense organs in the occipital cortex. A mental image brings objects to mind without requiring the outside world or the sensory organs to do so. According to McGinn (2004) both involve sensory information, but vision requires an object to be present in the environment. Mental imagery does not.

However, McGinn (2004) seems to separate the processes and functions of vision and mental imaging in human cognition as if they were not part of the same machinery. One crucial difference between vision and mental imagery, according to McGinn (2004), is that the former is passive while imaging requires an active mind. He views visual perception as a process by which objects fall passively on the retina via the visual apparatus. It occurs without conscious effort. We cannot help but perceive the world around us. Imaging certain objects in human cognition, by contrast, is subject to the will and necessitates active mental effort: it cannot persist in the absence of conscious attention (McGinn, 2004). The proposal is that images are internally and wilfully created whereas vision is a mere receptor of the world outside. McGinn (2004) thinks this is reflected by the respective verbs for perceiving and imaging: 'see' and 'visualise'. Whereas 'see' implies passivity, 'visualise' implies active effort.

As an illustration of McGinn's (2004) 'visual experience', consider the following: while sitting on the beach, perceiving the sun falling over the sea, external information falls onto the retina. The mind replicates the visual information identically in the visual cortex (McGinn, 2004). Simultaneous to the visual perception of the sun, sea and light, the mind may wander into a mental image of a desired interaction with a friend. As the mind is captivated by its new audience of imaged scenario with the friend, the visual perception of the sun and light may fade from consciousness. It does not disappear entirely since it does not require conscious, active attention to keep it mentally present. On McGinn's (2004)

account vision is continual, automatic and below the level of consciousness. Imaging, on the other hand, is extinguished once conscious attention of it fades. For example, while on the beach, you perceive the loud screech of a seagull overhead, which pulls your attention away from this imaged picture of your friend. The reason, as McGinn (2004) nicely captures, is that the mental image is not formed automatically: it is willed into being.

The idea that perception (vision, hearing, touch, smell and taste) is passive is a somewhat naïve explanation in light of recent psycholinguistic work on auditory processing. Skipper (2014) successfully demonstrates that the auditory cortex, normally associated with the decoding of speech, is, strangely enough, relatively uninvolved with the processing of meaningful sentences. He suggests that meaning is largely predicted from the context, implying that hearing derives more from the brain than the ears. Perception is not passive. His view would no doubt be grounded in the assumption that perception primarily gains sufficient data to be able to move to a more predictive-based model of understanding.

Coulson (2006) views the process of seeing as a constructive process in which optical information combines with memory stores of world knowledge in deriving a visual perception of the outside world. This is because the world is far more complex than the optical information that falls on the retina, so the brain fills in the gaps of meaning (Coulson, 2006). One example is a blind spot we have on our retinas that receives little visual information, yet we have no perceptual recognition of this. Another is that we blink approximately every 5 seconds, which leaves 250 milliseconds with no external visual stimulus (Coulson, 2006). Despite these neural gaps in sight, we receive constant visual stimuli as our world knowledge stores supply the remaining data. As a consequence, Coulson (2006) suggests two-way processing mechanisms in which the conceptual areas of the mind/brain can gain access to the perceptual regions and vice versa. The notion of reciprocity reinforces Kutas' (2006) argument that cognition forms part of a feedforward and a feedback system. There may be different processes located within different regions, but that the vast neural networks that inform them produce the effect that they are occurring in the same place.

A significant consequence of McGinn's (2004) view is that mental images cannot alter the mental content of belief since they are produced internally. If the person is the source of the mental image, the knowledge acquired is already held by them: it is not new information (McGinn, 2004). Therefore, for him, any information that is not derived from the outside world cannot contribute to the formation of new beliefs. I suggest that the observation encouraged by mentally imaging an object can help formulate new beliefs because it is possible to understand a known phenomenon in a new way. Perception works differently, for McGinn (2004), as its source is the external world, enabling the processing of novel information. It allows for the possibility to change beliefs held about the world. Accordingly, this thesis claims that, on his account, mental images are erroneously isolated from belief, in line with Davidson (1978).

In a similar way to Davidson (1978), McGinn (2004) claims that imagery can be activated during metaphoric interpretation. Both agree that metaphoric uses cannot contribute to a truth evaluable proposition but, unlike Davidson (1978), McGinn (2004) does not think that imagery alone is sufficient to account for metaphoric comprehension. McGinn (2004) claims images can be accessed by metaphoric uses, but that it is imagination which is responsible for processing. The difference to Davidson (1978) is that imagination is propositional so that addressees embed the metaphoric utterance under: imagine that (McGinn, 2004). The claim in this thesis is that metaphors can make propositional *and* non-propositional content mutually manifest. The non-propositional elements are able to contribute to the proposition expressed by the utterance, and so can be truth evaluable insofar as the addressee is able to imagine what possible or actual conditions would need to pertain in order for them to be true. An example is used, based on vocabulary (<stillpoint>) employed by yoga and bodywork practitioners, and for an audience who is familiar with such terms (see the glossed meaning below):

66) A: How did your joint workshop go?

B: Oh yeah, David was the absolute stillpoint (said ironically).

The word <stillpoint> activates the lexically encoded concept STILLPOINT. The meaning refers to the cessation of cranial sacral fluids in the spine (fluids that run from the top to the base of the spine), allowing a rest in which healing can occur. Under the approach offered here, STILLPOINT may provide access to a sense of calmness and rest, a mental image of a person undergoing healing, instigating, pleasurable sensations and a feeling of spaciousness, and thus contributing to the explicit proposition below:

67) Explicit content: David was the absolute STILLPOINT* (mental image of healing, pleasurable sensations and a feeling of spaciousness).

The explicit utterance would be processed in parallel with accessible contextual assumptions:

68) Contextual assumptions: people who have attained the stillpoint would be calm (feeling of calmness) to be around, unstressed and able to maintain a calmness in the face of adversity.

However, the added ironical element suggests that speaker B is disassociating herself from the explicit proposition, and so would communicate the following implicated conclusion (Sperber and Wilson, 2002):

69) Implicated conclusion: David was very stressed and unable to function.

Should the context permit, the implicated conclusion may also include non-propositional representations, such as the activation of unpleasurable sensations, a sense of tightness and a mental image of when a person is stressed, derived from the metaphorically used STILLPOINT*.

Broadly speaking, the metaphorical example in (66) illustrates Speaker B making a statement about her co-speaker's ability. The point is that Speaker A employs the encoded concept which provides access to conscious imagery and feelings to contribute to the ad-hoc construction STILLPOINT*. These non-propositional elements are instrumental in fleshing out B's thought about the world. The difference, on the account described here, is that images do not work in isolation, but are part of what undergoes inferential operations in determining the speaker's meaning. Therefore, the new framework offered in this thesis merges the imagistic aspect of Davidson's (1978) approach with the conceptual and propositional part of relevance theory with ideas from embodied cognition, which extend beyond the image into other non-propositional elements. In line with Davidson (1978), it is possible for A to imagine a world in which a person is *seen as* certain spinal fluids, and further to disassociate themselves from this image/concept/feeling for the added ironical meaning. In contrast to Davidson (1978), this thesis argues that the use of imagination in its employment of propositional and non-propositional elements can contribute to the truth conditions of the utterance.

4.4.2 Mental imagery and space: McGinn and experimental research

This section explores McGinn's (2004) notion of spatial dimensions, referred to in this section as 'space'. It examines how we, as subjects, are able to relate to a physical notion of space within the visual field and in the mind's eye (imagery). The aim is to extend the idea of what is non-propositional to motor aspects of cognition such that I can mentally represent movement as I process a metaphorical utterance.

McGinn (2004, p. 30) draws a simple contrast: the visual perceiver and perceived object is a kind of 'double reference' in which the object needs to be present whereas a mental image relates to absent objects in the mind's eye:

The "absence" of the imagined object is an indication that the body has been "transcended" in imagination. That is to say that no definite relation between object and body is implicated in the intentionality of the imaginative consciousness. (McGinn, 2004, p. 30)

The idea that imagination and imaged objects do not reference the body is noteworthy. It suggests that McGinn (2004) perceives imagination and mental images as divorced from physical reality. They take objects from the world, store them, and recreate them within a different notion of space where the perceiver does not exist in the same referential way. This thesis claims, however, that imagery and vision are quantitatively different by a matter of degree, and so share similar biological and psychological structures and functions.

Needless to say, imagination and imagery are probably more detached from reality than belief and vision. However, Damasio (2000) claims that the body proper is involved during emoting, perceiving and imaging (see section 4.6). In terms of space, rather than positioning vision and mental imagery in an either/or relationship, as McGinn (2004) does, it might be better to view the relation to imagery as simply less direct than it is for vision. If you close your eyes and image a scenario with you and a friend, is it possible for you to be in your body, or are you looking at your body? Is it possible to image this scenario and feel something as a result of it? Even though it is not a real extension of your physical body, it seems that there may be qualities of affect and space that are able to arise. The reason is that mental imagery is probably not the polar opposite of vision, in the way that McGinn (2004) presumes. Edelman (2001) also argues against such a dichotomy because, in his view, the sensory input of conscious perception can be either active or passive: the outer world can filter in, in a receptive way, or our attention can actively focus on an entity or situation. Whatever our perceptual interaction is to the world around, the processes inside cognition seem to conform to an active construction between knowledge stores and the sensory input received (Coulson, 2006; Kutas, 2006; Skipper, 2014).

The notion of space in the visual field is also relevant in understanding the finer quantitative differences between vision and mental imagery. In the visual field, vision is a reflection of the anatomy of the eye (McGinn, 2004). For McGinn (2004), it means that eyes perceive a relation between the boundary, the periphery and the centre; they have binocular depth and light reflection. Moreover, perceived objects are always located within the rest of the scene, and not in isolation. However, the perceived coherence of binocular vision is a misnomer:

two disparate retinal images from each eye are artificially synthesised together in the mind, not as a result of the anatomy of the eye (Edelman, 2001). The fact that it is the mind/brain, not the eyes, that fill in the gaps of visual perception is reminiscent of Skipper's (2014) analysis of hearing in which he proposes that during the hearing process, the brain works more than the ears.

For McGinn (2004), the mental image is confined by the biology of the mind's eye, and so lacks the ability to distinguish clearly between the periphery and centre. Moreover, considering the mind's eye does not have two biological eyes, for him, it lacks depth of vision. Mental images are mostly envisioned as being in isolation without the surrounding scene. Nevertheless, for him, mental imagery does accord with a type of space as objects are embedded within a frame in the image. Following Ganis, Thompson and Kosslyn (2004) (see section 4.5), this thesis proposes that vision and mental imagery are processed in similar spaces in human cognition, except that vision is partially derived from the anatomical eye. Mental imagery may not construct as accurate a picture of the world as vision, but it is sourced from memory in the partial reconstruction of former visual percepts about particular entities or events (Barsalou, 2009). The world is the principal source of vision; memory is the principal source of the image.

For Barsalou (2009), cognition is multimodal, and so memory can store original instances of perception with not only their sensory representations, but also those related to motor function (see chapter five for further discussion). It is, therefore, possible to extend the definition of non-propositional content from perceptual (visual, imagery) and affective to include motor function. Aravena *et al.*'s (2012) study lends weight to this proposed incorporation of the motor cortex during utterance interpretation. Subjects listened to sentences of the type below, which involve action verbs in the affirmative and negative, respectively. Their claim is that 'if the representation of an action word involves neural motor structures, the negated actions should first activate and then inhibit the corresponding motor regions' (Aravena, *et al.*, 2012, p. 2):

70) 'At the gym, Fiona lifts the dumbbells.'

71) 'In the place, Laure doesn't lift her luggage.' (Aravena, *et al.*, 2012, p. 3)

Their findings suggest that through the use of grip sensors, the affirmative construction in (70) is activated at 320 to 520 milliseconds and peaks between 520-800 milliseconds in contrast to the negative one in (71), which is activated in the same time window, but considerably weakens in the second phase. The timings, for Aravena *et al.* (2012), suggest that action verbs/concepts are involved in the semantic and pragmatic phases of utterance processing.

The proposal here is that a concept incorporates a combination of encyclopaedic information, affect, perception, imagery and movement. Concepts provide access to both propositional knowledge structures in the encyclopaedic entry (in relevance-theoretic terms) and non-propositional entities: an amalgamation of all perceived, felt and conceptualised instances of a category, stored in cognition. More specifically, as Barsalou (1999) claims, in particular contexts, activating a category or concept in cognition enhances the possibility of consciously constructing an associated mental image.

Consider the following example about Kathleen Hanna in her biographical documentary 'The Punk Singer':

72) 'The film, which opens Friday in New York and Los Angeles, also steps inside her life with husband (and Beastie Boy) Adam Horowitz, as an ongoing struggle with late-stage Lyme disease forced her to step away from Le Tigre and go into treatment.' (Van Syckle, 2013)

According to the relevance-theoretic framework (Sperber and Wilson, 2008, Carston, 2010b) the phrasal verb <step away> activates the encoded concept STEP AWAY in the mind alongside the nominal subject, KATHLEEN HANNA (derived from the previous context), and the prepositional phrase, FROM LE

TIGRE. The intention is to understand the way the target concept, HANNA, left her previous band, LE TIGRE. It could mean to literally and physically move away or retreat from, but it also seems metaphorical. This thesis suggests that the mental image of STEP AWAY is constructed from visual memory stores. An addressee, according to Kosslyn (1980), would construct the image of stepping away sequentially. For instance, I may take hair from one image and facial features from another visually stored percept. STEP AWAY may also activate certain motor structures in the mind/brain such that the hearer may activate that part of the brain, and which may register in the body proper as Aravena *et al.* (2012) have suggested. Given the right context in which a hearer searches for sufficient cognitive effects to offset the extra effort, the imagery and movement could be brought to the conscious mind/brain (Barsalou, 1999), as a gestalt-type whole. In the example in (72), the image and motor representation could represent HANNA literally moving away (as Davidson (1978) suggests), which when transferred onto LE TIGRE, considering her struggle with illness, may evoke a felt sense of sadness and disappointment since she is ‘stepping away’ emotionally and psychologically.

Referring back to McGinn’s (2004) point about a ‘double reference’ for vision, when visualising or imaging a scene in the mind, there seems to be a viewer and an object of gaze, which in this instance are: us, Hanna and her band. It implies a different field of space, or, at least, perspective, between the subject and object in the mind’s eye. If this is the case, vision and mental imagery seem to be more closely linked than McGinn (2004) would allow for. Language, as with cognition, reflects the possibility to express not only our different roles: ‘the agent, the undergoer and the observer perspective’ but also those of the other participants because it captures our relation to the world (Feldman, 2006, p. 130).

This section has extended the definition of non-propositional entities to motor representations, which are argued to work in a similar way to mental imagery when processing a metaphorical utterance.

4.5 Parallel cognition and mental imagery

This chapter has argued that mental imagery is able to contribute to the proposition expressed by an utterance; this section proposes that such a view requires a parallel model of cognition. A parallel view means that propositional and non-propositional entities can be simultaneously accessed during utterance interpretation.

Section 4.2 discussed Pylyshyn's (1981) view that emphasised the referential and semantic nature of mental images or structural descriptions. Such a view is positioned within an understanding of cognition as an amodal symbol system (Barsalou, 1999). Within this framework, a mind converts perceptual input from the world into an entirely different representational format. The relation between perceptual input and symbolic representation in the mind is arbitrary since their formats share no similarities (Barsalou, 1999):

These symbols are amodal because their structure is unrelated to the structure of perceptual states. These symbols are arbitrary, because they are linked to perceptual states via arbitrary conventions of association. (Barsalou, 1999, p. 1)

The amodal symbols access further representational formats: feature lists, schemata, frames, semantic networks and logical expressions (Barsalou, 1999). As such, it could be said to be the principal framework within which linguists and philosophers understand cognition.

Barsalou contrasts the amodal symbol system with his own *perceptual* symbol system (1999). Within this system, perception stores information in memory and partially re-enacts it to symbolically represent referents in the world, rather than according to an arbitrary relation between perceptual input and mental symbol in cognition (Barsalou, 1999):

These symbols are modal because they have the same structure as perceptual states. These symbols are analogical, first, because their structure is informative about reference, and, second, because similarity between them corresponds to similarity between perceptual states. (Barsalou, 1999, p. 1)

The suggestion is that a mental representation (mental image or concept) resembles the object that it represents in the world, as Kosslyn (1980) claimed. The reason is that mental images (or concepts) are represented by symbols that are similar to the perceptual input of the object they represent. Mental imagery may be qualitatively different to a concept, but in their symbolic and analogous structure they are similar. For Barsalou (1999, 2009), imagery involves the partial retrieval of perceptual symbols from memory in the absence of the object: the 'image experience' is thereby explained (Barsalou, 1999). His view underpins Kosslyn's (1980) claim that imagery is never an exact replica of the object it represents, evidenced by the way that selective attention stores meaningful parts, such as the colour and shape over the lines and edges, depending on contextual constraints (Barsalou, 1999). If there is no cut-off point between perceptual and conceptual memory, as Damasio (1989) claims, it explains how images and concepts can be activated simultaneously during the flow of our thoughts.

In an analogous manner to Kosslyn (1980), Ganis, Thompson and Kosslyn's (2004) neuroscientific research concludes that vision and imagery share substantial neural substrates. Participants had to visualise a previously seen line drawing or look at a faint one on a computer screen, and answer evaluative questions. The functional magnetic resonance imaging (fMRI) results demonstrate considerable overlap in brain activity, especially in the frontal and parietal lobes, which is substantially more than in the occipital and temporal regions (Ganis, Thompson and Kosslyn, 2004). More specifically, the frontal cortex is associated with the cognitive processes of accessing episodic memory or making a conceptual judgement on content (Kosslyn, 1994). The activated parietal regions play an equally important role in rational and conceptual thought and also for attentional and spatial purposes (Ganis, Thompson and Kosslyn, 2004). The involvement of these regions for imagery indicates that it is not raw uninterpreted sensory data, as Pylyshyn (1981) claimed. Perception and conception work in parallel. The comparatively smaller twenty-six percent overlap between vision and imagery in the occipital cortex highlights its role in object identification and classification: processes necessary for vision, but not imagery (Ganis, Thompson and Kosslyn, 2004). Considering mental images are

mostly willed into being, as McGinn (2004) claims, lesser activation in the occipital region for imagery makes sense.

This section has claimed that mental imagery can result from the processing of a concept or category in cognition if the context is such that it brings it to consciousness. As concepts are represented as mental symbols, so too are mental images. Images resemble the perceptual input of the object they represent in that their construction in cognition constitutes a partial reconstruction of stored visual percepts or concepts. Such a view presupposes the type of cognition put forward by Kutas (2006) and Coulson (2006) in which there are feedforward and feedback connections between conception and perception such that thought consists not only in concepts, but in vision (imagery), movement and emotions. Their view correlates with Barsalou's (1999, 2009) perceptual symbol system view of cognition.

4.6 Perception, embodiment and affect

Chapter two explored Damasio's (1994, 2000) claims in which emotions are a body state reaction. These body state reactions play out in the body proper¹⁴. If it is the case that metaphoric utterances give access to feelings and emotions, it is possible to see how they might connect with the body proper. Within Damasio's (2000) embodied perspective, mental phenomena are partly understood via the neural mappings that underpin them. His ideas resonate with Cosmides and Tooby (1997) who claim that 'the mind is what the brain does'. This work is a far cry from philosophers with a keen interest in cognitive science and cognitive scientists such as McGinn (2004), Dennett (1981) and Pylyshyn (1981). McGinn (2004, p. 157) even shrinks from the idea of reducing mental phenomena to their biological basis: 'I think we do better to connect meaning with mental faculties that mirror its scientifically problematic character... reduction can be fine in its place, but not as a matter of dogma'. Damasio (2000, p. 9) acknowledges an 'explanatory gap' between how the brain turns neural patterns into mental

¹⁴ Body Proper is a term used by Damasio (2000), but it is also referred to here to mean the holistic systems of the body: the sensory nervous system (within the muscular system), the fascial system and the fluid system (Myers, 2009)

content. As such, there are limitations to what fMRI, event-related potentials (ERP), eye tracking and other such equipment can achieve (see Spivey (2007) for a comprehensive review). Despite these accepted shortcomings, this thesis considers that experimental research from other disciplines is a useful tool to provide different perspectives on how language is processed and interpreted.

As Feldman (2006, p. 7) argues, ‘language and thought are not best studied as formal mathematics and logic, but as adaptations that enable creatures like us to thrive in a wide range of situations’. Language is a response to environmental demands upon the organism. Sperber and Wilson claim:

The disposition to believe is not (so to speak) wholly inside you, but also involves the environment. However, the fact that the environment is involved does not stop it being a disposition. This environment-dependent disposition to believe may in fact be stronger than a purely internal disposition to believe. (Sperber & Wilson, 2014, p. 15)

The connection assumed in the quote above between the environment and belief is an interesting one and is similar to views expressed by Gendlin (2012). The ‘environment-dependent’ relation describes the way in which our thoughts and so also our language are shaped by the world. This is what Gendlin calls a ‘body-environment interaction’ (Gendlin, 2012, p.6). The environment is not wholly external, nor does the body completely merge with the perception; it is a two-way process. It does not necessitate, however, that perception constructs an exact replica of the world, but rather that the world is interpreted, according to our individual cognitive and bodily structures (Spinelli, 2005).

McGinn’s (2004) view of vision specified an identical transmission from the world into the mind/brain; the difference to Damasio can be seen below:

There is no picture of an object being transferred from the object to the retina and from the retina to the brain. There is rather a set of correspondences between physical characteristics of the object and modes of reaction of the organism according to which an internally generated image is constructed. (Damasio, 2000, p. 321)

The mental representation of the object undergoes the process of reconstruction so that what your mind perceives is not identical to the external object. For Damasio (2000), the perceptual areas can be accessed by the conceptual regions ('modes of reaction of the organism') in the creation of a perception. Notice that the perception occurs below the level of consciousness, as suggested in chapter three: I do not stop to decide what shades of colour or brightness of light I am seeing. How we perceive is subjectively coloured by our background knowledge, attitudes and beliefs. Rather than our conceptual knowledge being considered as an add-on to perception, it helps in the construction of what we see and hear. On his account, vision accords with mental imagery in that it also draws on memory resources and attention in the construction of a form that is not wholly bound to accord with the actual. The suggestion is that there is no mind's eye perceiving a mental object, but a mental construction, correlated with certain brain structures.

As with Barsalou (1999, 2009), Damasio's (2000) view of perception is intimately tied to embodiment and consciousness. Damasio (2000) regards the relationship that is mapped between a perceived or imaged object and the body as the root of consciousness. To illustrate, as I look at the plastic skeleton hanging in my room, the object is mapped into neural patterns in the early sensory and motor cortices in my brain (Damasio, 2000). More specifically, the object is represented by the way that these patterns of light on my retina have been translated into a cortical representation that is no more than the interactions between the neurons in my brain. Likewise, Fodor and Pylyshyn (1988) claimed that sensorimotor functions need to be 'specified somatotopically' to their neural structures beneath. The same process occurs, only to a lesser degree, if I retrieve my skeleton from memory and image it. These sensorimotor representations are first-order because they are only one level (Damasio, 2000).

In contrast to the views of McGinn (2004), Dennett (1981) and Pylyshyn (1981), these patterns of interaction communicate to the body, which is represented in the form of maps in the brain stem, hypothalamus, the insular cortex 2 and medial parietal cortices (Damasio, 2000). These first-order body maps are able to chart the entire body and any ensuing changes from the bones, muscles, tissue, nerves, hormones and so on. The brain minds the body. The body proper will change,

however minutely, as a result of the new incoming object (from world or memory), and this new relationship between the body and object is mapped in a second-order relationship (recall what feelings are from chapter two). It is second-order because it represents the temporal changes to both representations, and is able to exert an influence on these structures about the change (Damasio, 2000). The second-order representation, on Damasio's (2000) account, is more of a general ability for one mental representation to encompass others.

An example is the perception or memory of drinking my tea while writing my thesis: the perceived or remembered warmth and sweetness of the liquid and how it combines with certain body changes, such as the slight pick-me-up from the sugar, and a background emotion of a subtly pleasant sensation. The second-order mental image¹⁵ creates an awareness of how the sensorimotor processes affect the body because it combines these first-order mental representations from disparate brain regions. It is processed in the superior colliculi and the cingulate cortex through the coordination of the thalamus (Damasio, 2000). The implication is that it is possible to localise biological structures and processes in the identification of mental content. In view of Cosmides and Tooby's (1982) description, Damasio (2000) focuses on the biological and psychological levels of understanding: the mind/brain.

Consciousness is thought to be pulse-like in that it ceaselessly changes every few milliseconds (Damasio, 2000). In fact, Damasio (2000) claims that the brain never stops mapping these relationships between object and body unless under meditation or some form of disciplined control. It might explain the struggle faced by those interested in quietening the mind: we are biologically programmed to constantly process, categorise and assess. What Damasio's (2000) account provides is the idea that a visual percept or mental image is not processed in isolation in the brain: it is intertwined with the body. Perception is embodied.

To illustrate how the perceiver functions when processing an object, consider the following example (adapted from Damasio 2000). If I am, for instance, watching

¹⁵ 'Image' in Damasio's (2000) terminology means mental representation

the arrival of a dominating boss, the following unconscious actions take place: the orientation of my head and neck towards the person; focussing of my eyes; adjusting my vestibular system in the inner ear to allow for balance and positioning in space; slight alterations to the colliculi and brain stem nuclei to adjust head and neck movements; and activation of the parietal and occipital cortices in the modulation of these processes. These sensory and motor adjustments to the oncoming object would activate changes to the state of my organism as part of the process. In other words, they induce an emotion; in this case, one of fear. It could be enacted through quickening my heartbeat, draining the colour from my skin, restricting the diaphragm and breath and tightening the cells around my gut (Damasio, 2000).

Damasio (2000) clearly underlines how perception is not just about vision, but the whole body: the musculoskeletal system, emotions, endocrine system and so on:

There is no such thing as *pure* perception of an object within a sensory channel, for instance, vision. The concurrent changes I have just described are *not* an optional accompaniment. To perceive an object, visually or otherwise, the organism requires both specialised sensory signals *and* signals from the adjustment of the body, which are necessary for perception to occur. (Damasio, 2000, p. 147)

In the previous section, perception was linked to the conceptual part of cognition whereas in this section the emphasis is on its embodiment. Although Pilkington (2010) does not talk about embodiment as such, he does touch on the way poetic metaphors evoke emotions and mental imagery where emotions, in this thesis, are viewed as body state reactions: the physiological response to a certain thought or object in the world (see Damasio (1994, 2000) in chapter two). His account may go beyond that offered by Sperber and Wilson (2008) in his idea of evoking affective and imagistic representations, yet there is no reference to how they play out in the body proper (Pilkington, 2000, 2010).

More specifically, perceptual processes involve signals arising in the peripheral sensory organs: inner ear, eye and so on, and are related to the primary sensory regions in the cerebral cortex through the interconnecting subcortical thalamus (Damasio, 2000). The point is that these biological, neural maps of the object

from each sensory mode are, according to Damasio *et al.* (2004), integrated into a cohesive mental representation: a convergence zone. These intermediary representations could be related to a combination of colour, shape, frequency, sound and texture: it is not just visual (Damasio, 2000). It is the mental counterpart of the complete sensory neural patterns that underwrite it, united into a cohesive form (Damasio, 2000). A representation of this nature substantiates a parallel view of cognition similar to Barsalou (1999, 2009).

Watching John Lydon give a talk, I perceive not just the visual sight of him, but also the particular sounds of his voice, the smell of the room, the expectant feeling of the audience, the way I am tensing my shoulders, and my own peculiar nervousness as to what he will say. As Damasio states:

The images you form in your mind *always signal* to the organism its own engagement with the business of making images and evoke some emotional reactions. You simply cannot escape the affectation of your organism, motor and emotional most of all, that is part and parcel of having a mind. (Damasio, 2000, p. 148)

Emotions are a fundamental and inescapable part of the process. More importantly, the process is the same for perception as for when you are ‘quietly day dreaming in the darkness’ where ‘daydreaming’ is imaging (Damasio, 2000, p. 148). When I remember Lydon, I do so schematically with a partial activation of the sensorimotor and emotional representations perceived at the time (Barsalou, 2009). It is the role of the convergence zones to construct and unite these cohesive and embodied representations through the interplay of collective activity: there is no homunculus (Damasio and Damasio, 1994; Damasio *et al.*, 2004). These zones signify how constituents of thought are embodied in their inclusion of say, imagery and emotions: we can think in images and our thoughts are embodied.

Evolutionary psychologists Cosmides and Tooby (2000) present an embodied view of cognition. They view feelings¹⁶ as a ‘superordinate programme’ that monitors and controls the other ‘subprograms’, opposed to being part of our

¹⁶ Cosmides and Tooby (2000) use different terminology to Damasio (1994) in that they call feelings, emotions. For the reader’s ease, I have remained with Damasio’s (1994) terminology.

collective machinery (Cosmides and Tooby, 2000). Damasio and Damasio (1994), Damasio *et al.* (2004) and Richter and Zwaan (2010) discuss the alternative possibility of the aforementioned ‘convergence zones’, activated upon hearing a word, and providing access to the related concept through the unification of various sensorimotor representations from disparate regions. Considering emotions and the feeling of them are integral, they are engaged as a consequence of the process of sensing and conceptualising about the world (Damasio, 2000). That is not to say that emotions/feelings cannot fuel our reasoning in those conscious or unconscious ‘gut’ feelings we experience, as Damasio, Everitt and Bishop’s (1996) Somatic Marker Hypothesis claims, but that the organism functions as a whole.

Feelings, for Damasio (1994, 2000), are not so much the governors of the proceedings, as Cosmides and Tooby (2000) imply, but they are instrumental in determining our survival (see chapter two). Evolution, with its chance mutations and selective adaptations, has sculpted a large percentage of our emotional responses and our capacity to feel them (Damasio, 2000; Cosmides and Tooby, 2000). For Damasio (2000), however, it is the inducers of emotions/feelings, our personal triggers for fear, that are highly variable among individuals and cultures: the dark may scare you, but failure scares me. It is the flexibility of these inducers, which are not part of our biological programming, that is significant. They enable individual emotional responses that go beyond our primary hard-wired emotions through an interaction with the environment in place of being predominantly conditioned by past adaptations. As our encyclopaedic resources vary, so too does our emotional responses to certain triggers, encapsulating our uniqueness amidst certain predetermined architecture.

Why has imagery evolved as a form of thinking? From an evolutionary perspective, it enabled a mental replay of possible scenarios in planning a response to environmental demands (Cosmides and Tooby, 2000). It has an evolutionary advantage. We might picture the hypothetical case in which an early hominid decides to sample the delights of another hunter-gatherer’s woman in her cave dwelling. On being notified of his rival’s return, he may have to mentally image the quickest route out of the cave and back to his own dwelling. The

emotions ('feelings' in Cosmides and Tooby's (2000) terminology) of fear and panic may be running through his veins as a result of hearing the news and the perceived success, or lack of, of the imaged escape route. The emotional responses inherent in the imaged route and its possibility for failure, alongside the imaged outcome of failure, may mimic those induced by his actual arrival and confrontation (Cosmides and Tooby, 2000). On their view, cognition does not perceive the difference between an imaged or perceived scenario in terms of the emotional/feeling and physiological responses. Emotions and feelings matter.

When Davidson (1978) or McGinn (2004) talk of mental images, they refer to a disembodied notion of sensory activity. Emotions are hinted at, in consequence to imaging, in their denotation, rather than their evocation. This thesis argues that in order to understand metaphorical processing, it is necessary to go beyond the denoting of emotions and explore their interaction to sensorimotor (that is perception and movement), affective and also physiological processes, employed during comprehension. The claim is not that every word gives rise to an emotional response, but that investment in certain creative constructions invite more imagery and feelings than literal language. Needless to say, McGinn's (2004) mental image cannot be replaced by Damasio's (2000) conception of a mental image/representation since Damasio (2000) aims to define human cognition as a whole, rather than focussing solely on imagery. When this thesis talks about mental imagery, it refers to a qualitatively different type of phenomena to concepts and their logical properties. It can be mentally represented and contribute to propositional forms. As such, it is part of a parallel view of cognition, or rather a multi-modal mind/brain, in which feelings/emotions and sensorimotor elements are able to contribute to our thinking processes.

If relevance theory incorporates the notion of a concept, within an embodied view of cognition, it would enable propositional and non-propositional (sensorimotor, emotional and bodily) representations to be processed in conjunction. To illustrate, a line from a Joni Mitchell song, 'I think I Understand', is used:

73) 'Today I am not prey to dark uncertainty.' (Mitchell, 1969)

The juxtaposition of the concepts PREY, glossed to mean the hunted or victim to an enemy, and (DARK) UNCERTAINTY, suggesting a lack of confidence or control, provides an insight into Mitchell's emotional life (to keep the analysis simple, the adjective DARK is not focussed on). The line suggests she is a victim to the intangible concept, (DARK) UNCERTAINTY, rather than to an animal or a person, as the literal language might suggest. Therefore, the explicit content might be:

74) Explicit content: Today I am not PREY* to (DARK*)
UNCERTAINTY*.

On a relevance-theoretic account (Sperber and Wilson, 2008; Carston, 2002, 2010b), the ad-hoc concepts PREY* and (DARK*) UNCERTAINTY* are created from the personal and cultural information found in the encyclopaedic entries of the encoded concepts, or within the phenomenological entry (Pilkington, 2010). Hence, certain qualities of the victim/hunter scenario are carried over from PREY* to UNCERTAINTY*. Within an embodied approach, PREY* might provide access to the mental imagery of a hunt scenario, alongside the emotion of fear, prevalent in the hunted. The emotion could evoke the body states of fear or mild panic in manifesting a quickened heartbeat and constricted gut. With the imagery, feeling, body states and encyclopaedic knowledge in mind, it is possible to gain an understanding of how UNCERTAINTY* is viewed from Mitchell's perspective. This thesis proposes that without the mental imagery and feelings associated with the hunt, the addressee would be unable to recover the communicator's intended meaning with the precision shown above. It would leave the thought as vague, and place novel metaphoric interpretation within what Wilson (2012) views as the broader 'interpretation' process in which the conclusions drawn about the intended meaning are possibly not attributable to the hearer with any strength.

According to the relevance-theoretic procedure, the explicit content taken in context, might create the following assumption:

- 75) Contextual assumption: (DARK*) UNCERTAINTY* is a mental state that normally tracks me down as a hunter sets out to catch their prey.

This leads to the implicated conclusion:

- 76) Implicated conclusion: Today I am not experiencing my usual depressing feelings of insecurity.

Propositional and non-propositional representations combine in the interpretation procedure: images and feelings contribute to our thinking processes. Without the non-propositional representations of the imagery and fear of the hunt, leading to certain physiological responses, the claim in this thesis is that it would be harder to arrive at the implicated conclusion. These representations enhance the accessibility of the contextual assumptions and conclusions. The ad-hoc concept (DARK*) UNCERTAINTY* would lose its perceptual and emotional feel, leaving words with little resonance. According to the account offered in this thesis, Mitchell explicitly intends to communicate her emotional state, yet due to individual variation in our emotional inducers (our personal triggers; see Damasio (2000) above), emotional responses and encyclopaedic resources, our interpretations differ. I am little acquainted with hunting, aside from disagreeing with its inevitable animal cruelty, but an anti-fox hunting activist may conjure further emotions, such as a dampened anger, during comprehension. Our mind/bodies influence interpretation.

This section has emphasised the role of embodiment, especially in the interpretation of novel metaphors, which brings our feelings/emotions and physiological responses to consciousness.

4.7 Conclusion

This chapter has argued that mental imagery is involved in our thinking processes. It further claimed that a mental image is constructed from visual percepts stored in cognition, which can contribute to a propositional

representation about a speaker's metaphorical meaning. This view calls for a parallel model of cognition in which non-propositional and propositional representations can be processed in unison.

This chapter has explored Davidson's (1967) imagistic theory of metaphor in which metaphoric uses express non-propositional components only. He suggests that metaphoric language uses cannot be truth evaluable. This chapter has proposed that it is the non-lexicalised thought, perception and feeling behind a particular metaphorical use, which can be assessed for their truth or falsity. Hence, the account offered here proposed blending elements of Davidson's (1978) imagistic theory with relevance theory's ad-hoc concept approach.

This chapter also reviewed key debates which dismissed imagery as mere epiphenomenon. By contrast, McGinn (2004) does acknowledge the sui generis status of mental imagery, and that they can contribute to metaphoric interpretation. For him, images alone are unable to account for the process of metaphoric interpretation. This chapter proposed a new framework that incorporates aspects of the ad-hoc approach with Davidson's (1978) ideas about imagery and Barsalou's (1999, 2009) parallel model of cognition. Barsalou's (1999, 2009) parallel model enables metaphoric language use to extend beyond images so that it gives simultaneous access to: sensorimotor (imagistic), affective, physiological, which can contribute to the proposition expressed. The next section aims to explore exactly how an embodied concept within an embodied cognition view can be incorporated into this new framework for understanding metaphoric interpretation.

Chapter five: Embodiment: from concept to cognition

5.0 Introduction

This thesis offers an account of communication and cognition which incorporates the role of non-propositional entities in arriving at a speaker's meaning. The central aim in this chapter is to show how the new framework offered in this thesis synthesises aspects of the relevance theoretic ad-hoc account of metaphor (Sperber & Wilson, 1995, 2008, 2012; Carston, 2002, 2010a, 2010b) with Barsalou's (1999, 2009) perceptual symbol system of cognition. Commencing with the notion of a concept, it proposes combining the Fodorian (1998) and so relevance-theoretic approach to concept acquisition with Barsalou's (1999, 2009) claims about resemblance. Barsalou (1999, 2009) argues that concepts are acquired from the world since there is relation of *resemblance* between the perceptual input of the concept and the mental symbol that represents it in cognition. The mental symbol or conceptual label is partially derived from the original perception, thus explaining how they are matched together. Hence, an embodied concept is the route into an embodied mind.

The type of mental symbol or concept that Barsalou (1999, 2009) refers to is what relevance theorists call the lexically encoded concept. Often, the meaning communicated by an encoded concept does not directly translate into a concept in the language of thought (Carston, 2002). That is, we use a concept as a kind of schema with which to communicate a more fine-grained meaning, which is inferentially developed to derive the proposition expressed:

‘Conceptual encodings’ are (in many instances, at least) not really full-fledged concepts, but rather concept schemas, or pointers to a conceptual space, on the basis of which, on every occasion of their use, an actual concept (an ingredient of a thought) is pragmatically inferred. (Carston, 2002, p. 360).

The idea of ‘pointers to conceptual space’ follows Barsalou's (1993) notion of an ad-hoc concept, a temporary construction, built from the encoded category in cognition. This ad-hoc concept is constructed in a new space to more closely match the speaker's thought. Barsalou (1982) draws the distinction between the

context-independent features of encoded concepts, reliably activated on concept retrieval, and the context-dependent ones for ad-hoc constructions. Rubio-Fernández (2013) argues that such a distinction aligns with features which are associated to a concept (context-independent), and those which are inferentially derived (context-dependent), according to the context during comprehension.

This chapter raises the possibility of synthesising relevance theory's notion of interpretative resemblance in which mental representations *resemble* each other due to the degree of shared logical (inference rules) and contextual (encyclopaedic) implications with Barsalou's (1999, 2000) views on resemblance to enable a more effective framework for metaphoric interpretation. According to Carston (2002), the relation of resemblance exists between the literally encoded mental concept/symbol and the inferentially developed ad-hoc concept. Hence, on the account offered in this thesis, the encoded and ad-hoc concepts now resemble each other in terms of logical, encyclopaedic and non-propositional elements.

Section 5.1 briefly summarises what embodied cognition is. Section 5.2 discusses Fodor's (1998) approach to concepts with the intention of unifying it to Barsalou's (1999, 2000) perceptual symbol system of cognition. Section 5.3 aims to reconcile elements of Spivey's (2007) and Lamberts' (2000) embodied views of decomposable concepts with the relevance-theoretic notion of atomism. Section 5.4 summarises the relevant literature about concepts from an embodied perspective, and further presents how this conflicts with certain claims about the mind from an amodal perspective. Section 5.5 analyses the relevance-theoretic notion of a concept's associated information: the encyclopaedic and logical entries, and aims to synthesise aspects of their account with the role of the non-propositional. In section 5.5, ad-hoc concepts are examined from the psycholinguistic and relevance-theoretic viewpoints with the intention of incorporating elements of each into the new framework offered in this thesis.

5.1 Embodied cognition: a brief summary and synthesis

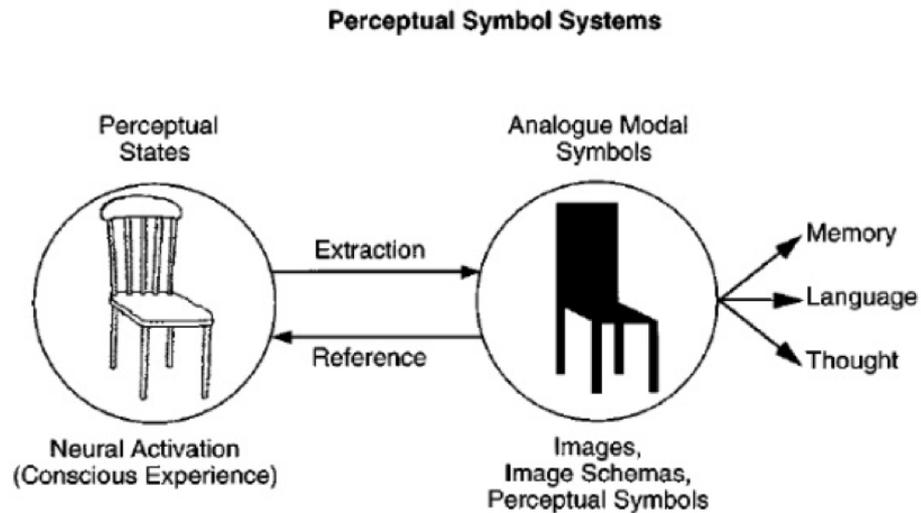
This section briefly summarises Barsalou's (1999) perceptual symbol system as the particular view of embodied cognition that is incorporated into the new

framework offered in this thesis. It also discusses a simple example of how Barsalou's (1999) ideas about resemblance may synthesise with the notion of interpretative resemblance.

Put simply, Barsalou (1999, 2009) has proposed an account of cognition called the perceptual symbol system, introduced in chapter four. This account assumes that there is a relation of resemblance between the objects in the world processed in our sensorimotor systems and our mental concepts in cognition that represent them. This is because our mental concepts are extracted from these perceptual and motor representations, such that they resemble each other (Barsalou, 1999, 2009). In figure five, the neural activation of perceptual states that represents the chair reflects how we process incoming stimuli in the sensorimotor cortex. The mental symbol or concept CHAIR is partially extracted from these perceptual states, and so on this occasion it might represent the shape, colour and feel of the chair as you sit on it. With all instances of perceiving chairs, we build up vast repertoires of perceptually stored information, out of which we derive CHAIR for different instances of use in thought or to infer an utterance meaning.

Figure five: Perceptual Symbol System

PSS



<http://emotionandembodiment.files.wordpress.com/2011/08/perceptual-symbol-systems.png>

Source: Barsalou (1999)

The broad aim in this chapter is to synthesise aspects of Barsalou's (1999) relations of resemblance with relevance theory's interpretative resemblance. What would this look like?

77) His debonair twist on events fooled me.

To enable comprehension of (77), the hearer would semantically decode the sentence to derive (78):

78) His DEBONAIR TWIST on events fooled me.

To determine the intended import of the metaphor, under pragmatic procedures, the hearer/reader of (77) would select certain propositional knowledge chunks in the encyclopaedic entries associated to the encoded concepts. During the interpretation process, the vehicle concept DEBONAIR may make accessible particular personal experience 'about people who are charming and belonging to

a particular social class' and TWIST may activate knowledge about 'a distorted meaning' in the creation of the contextually relevant ad-hoc concept collocation: DEBONAIR* TWIST*. Simplistically, the unusual amalgamation of concepts suggests a contradiction between a particularly charming person and the distorted views they present. Following relevance theory's propositional account, it would derive (79):

- 79) a) Explicature: His DEBONAIR* TWIST* on events fooled me.
- b) Contextual assumptions: if someone is debonair they have a particularly charming way of presenting themselves to the world; charming people are pleasant to be around; his distorted views may be covered up by his charming character; there can be a contradiction between what someone says and what their actions say.
- c) Contextual Implication: his charming character allowed me to get taken in by his distorted way of perceiving events.

Following Carston (2002), the area of interpretative resemblance lies between the encoded constituents in (78) and the ad-hoc concepts in the explicature in (79a) where the latter more closely resembles the thought it represents. However, by also incorporating Barsalou's (1999, 2009) notion of resemblance between perceptual input and mental concept, it can account for the way that the concept DEBONAIR can provide access to a recalled mental image of a sophisticated person you have encountered and remembered motor representations of the sophisticated way they hold themselves, which contribute to the ad-hoc creation.

The combination of accounts is argued in this thesis to capture with more accuracy the exaggerated distortions he presents and of the duplicity implied through the metaphor. This is because Barsalou's (1999, 2009) account is able to explain how non-propositional entities enter into our conceptual mental representations. It is not that the mental concept is the sensorimotor representation because it is symbolic, but that the mental symbol provides access

to perceptual, motor and affective information. Concepts are not extracted from emotions and feelings in the same way, but following Damasio (1994, 2000), they arise as a natural occurrence of perceiving, and as this account proposes also through metaphoric comprehension. I feel what you intend for me to feel through the creative amalgamation of concepts. As part of the relevance-theoretic comprehension procedure, the hearer/reader would construct hypotheses as to the speaker's meaning, which could be propositional/conceptual, affective or sensorimotor. The next section aims to clarify more fully how relevance theory's and Fodor's (1998) approaches can be merged with Barsalou's (1999) ideas by looking at the conceptual level.

5.2 A synthesis of informational semantics and embodied cognition

Relevance theorists predominantly base their view of concepts on Fodor (1998). This section summarises key Fodorian (1998) ideas on conceptual content and acquisition with the intention of uniting his views with those in embodied cognition. More specifically, it aims to synthesise what Horsey (2006, p. 153) terms 'intuitive concepts' (following a Fodorian (1998) mind-world correlation) to Barsalou's (1999, 2009) perceptual symbol system of cognition. Intuitive concepts refer to concrete and abstract entities, and originate from Sperber's (1997) understanding of intuitive beliefs.

Fodor (1998, p. 125) argues that the process of concept acquisition is a non-inductive process in which a person becomes 'nomologically locked to the property that the concept expresses'. His claim is that experience of, say, doorknobs triggers a locking onto the property *doorknob* that the concept DOORKNOB expresses. *Doorknob* is proposed to be an appearance property that just strikes our minds as being a doorknob (Fodor, 1998). Although the properties expressed by the concept are not innate, they are mind-dependent through innate inferential mental mechanisms that enable this process (Margolis, 1998). These mechanisms for acquiring concepts are also described as protoconcepts: 'unactivated innate concepts', which only attain content when triggered (Fodor, 2001, p. 138). Fodor further states that:

On all standard ethological accounts of triggering, part of what is innate in a triggered concept is a specification of its proprietary trigger. Since the trigger of an innate concept is both propriety and innately specified, such concepts can be unvacuously triggered by reference to what would trigger them ... [Thus] the content of protoconcepts is no particular problem for a semantic externalist, so long as he assumes that it supervenes on (possibly unactualised) dispositions. (Fodor, 2001, p. 138)

In this quote, Fodor (2001) asserts his position as a semantic externalist in which content is derived from the external world. Nevertheless, as Hutto (2005, p. 66) speculates, the innate trigger would surely require the 'preexistence of the very concepts that are meant to be acquired'. The nature/nurture debate is a complicated and much explored issue. It is, therefore, unsurprising that Fodor's (1998) account divides opinion as to whether it stipulates innate concepts or the innate mechanisms that he argues for.

Note that the acquisition of natural-kind concepts (water, metal and flowers) differs slightly to artefact concepts (doorknobs, computers and pharmaceutical pills), for Fodor (1998), since they are not solely mind-dependent on innately-specified mechanisms. Our mental protoconcepts firstly lock onto a property via an innate template, and then onto a theory, derived from an expert. In the case of water: *waterhood* (property) and H₂O (theory of chemical composition) are required for the concept WATER. It is, nonetheless, possible to have one without the other. As Margolis suggests, there is more to natural kind concepts than their extension:

A child ... takes herself to be confronted by a natural kind. As a result, she records information about the kind that her heuristics tell her is important and puts a record of this information in association with a dummy concept, that is, a previously unused mental symbol. This information together with the essentialist principle comes to constitute a sustaining mechanism which links the symbol with the kind she has encountered. (Margolis, 1998, p. 365)

The 'essentialist principle' Margolis (1998) talks about above is an innate capacity that enables infants to determine the difference between the internal essence of a living entity and its surface features. It is evidenced through research in which infants can distinguish between the insides and outsides of certain organisms whereby the former could correlate with an identity of sorts. Margolis

(1998) cites a further study in which infants will overlook perceptual similarities during a problem-solving task, implicating an understanding that identity may be hidden. Moreover, the placing of ‘a record of this information in association with a dummy concept’ suggests that encyclopaedic knowledge plays a role in acquiring conceptual content (Margolis, 1998, p. 365). The child would, therefore, be tasked with differentiating natural from non-natural kinds to know whether to access such essentialist knowledge.

Fodor (1998) argues that concepts are acquired and not learnt. By contrast, Horsey (2006, pp. 174/175) claims that the situation is not so simple and that there is a ‘complex interplay of innate and environmental influences on the course of development and learning’. As such, Horsey (2006) proposes a continuum between innately-specified contents, innately-specified mechanisms and learnt inferential mechanisms. For Horsey (2006, pp. 197/198), humans have the capacity for: i) innately-specified contents, such as for SNAKE, which are hard-wired to promote survival, requiring an environmental trigger and possible marginal learning to minimise false negatives; ii) innate templates or detectors in the form of inferential mechanisms or ‘attention directors to cues that are diagnostic for the perceptual discrimination of the entities in question’, explaining automatic and unconscious acquisition; iii) and learned detectors with no innate predisposition, present in human cultural knowledge and inherent in expert activities such as learning to recognise aircraft. In line with Fodor (1998), the innately-specified template in (ii) is the most common type in which certain environmental cues, say eyes, trigger the innate template for FACE, which itself contains a predisposition to attend to such cues (Horsey, 2006). Experience enables a detector for FACES to develop from our innate proto-concept, highlighting how humans can surpass their hard wiring.

Horsey (2006) makes a division between ‘intuitive concepts’ and ‘reflective concepts’. It follows Sperber’s (1997) separation between intuitive and reflective beliefs in which the former constitutes our direct referential relation to the world whereas latter describes our capacity to represent another’s belief. For Horsey (2006, p. 153), intuitive concepts can be either ‘perceptual’ or ‘inferential’ and contribute to our intuitive beliefs. They are ‘perceptual’ if they derive from our

direct relation to the world, such as natural-kind concepts (and possibly artefact ones), and move from a perceptual input to a conceptual output (Horsey, 2006, p. 153). They are ‘inferential’ if they are acquired via inference rules, for abstract or artefact concepts, and move from a conceptual input to a conceptual output (Horsey, 2006, p. 153). It nicely captures the intuition that certain concepts may predominantly *resemble* the world while others reflect our capacity for logical relations of entailment. To illustrate, a perceptual concept could be acquired via perceptual cues in the environment: POPPY by the colour red, round shapes and so on. An inferential concept, possibly an artefact, requires inference rules or relations of entailment: chair entails furniture. However, the distinction is blurred, for Horsey (2006), in that the concept CHAIR could be acquired via perceptual cues: the curved shape and so on.

Regardless of the differences between ‘perceptual’ and ‘inferential’ concepts, Horsey’s (2006) claims that they are both acquired via innately-specified templates. Acquisition is a subconscious process unlike the type of explicit cultural learning required for, say aircraft recognition (Horsey, 2006). For perceptual concepts, Horsey (2006) claims that contrary to our gestalt-type holistic experience of objects as wholes, evidence suggests that concepts are perceived through their componential features or cues in the environment. Since detecting such cues for perceptual concepts occurs below the level of consciousness, for Horsey (2006), he claims it is harder to evidence. In section 5.4, it is argued that the innate capacity for attention to features or cues in the environment is a component characteristic of the embodied mind.

Rosch *et al.* (1976) proposed that basic-level concepts are the first to be acquired by infants. She proposes a taxonomy by which concepts can be classified. It describes a series of hierarchical relations in which each category is included within another superordinate entity. For instance, the series begins with the most specific category, a cat called Tabatha, which is included within the type of breed it is, mixed-breed. The breed is incorporated into the basic level category, cat, which fits into its superordinate classification animal. Cat is less specific than animal, but not as specific as Tabatha. The basic level describes the level at which

an entity is understood to share common features, such that cats can be identified by their shape (Margolis, 1998). Landau further states that:

If the object naming system is linked to object shape on the one hand and object kind on the other hand, then young learners might assume that objects of similar shape are also likely to be of a similar kind. That is, the links among shape, name, and kind should allow learners to make a critical inference: Objects of similar shape are often also of similar kind. (Landau, 1994, p. 297)

Motion, colour, texture and other such perceptual features are also claimed to be inherent in the acquisition process (Landau, 1994). More importantly, they are not considered content, but, rather, part of the innate inferential mechanisms that determine what type of category an object belongs to during acquisition (Landau, 1994).

In Horsey's (2006) terms, categories acquired via particular perceptual cues are perceptual concepts (natural kinds and possibly artefacts). However, this thesis claims that to better explicate the process of how we lock onto properties during concept acquisition, these componential-feature cues are not mere mechanisms, but have the cognitive status as a mental representation with sensorimotor content, as Barsalou (1999, 2009) claims. They constitute the type of representation that can undergo inferential computations and contribute to the output of the deductive device in representing the intended speaker meaning: our minds *resemble* the world.

If these distinguishable environmental perceptual cues for shape, colour, size, texture and motion that Landau (1994) and Horsey (2006) talk about have cognitive status in the same way as a proposition, it might go some way toward capturing our intuitions that non-propositional elements can undergo inferential computations. Accordingly, possessing the capacity to represent componential features in the sensorimotor systems is explained by Barsalou's (1999, 2000) 'relations of resemblance': we lock onto properties since we partially represent a resemblance of those sensorimotor properties in our mind/brains when activating a category in cognition. Therefore, although we experience a gestalt-type perception of the world, it is possible to break them down into separate features,

and it is these that underlie our conceptual capacities: perception and conception are not informationally encapsulated.

I employ an example from Joni Mitchell in her song 'A Case of You' to illustrate the holistic experience of componential features:

80) 'I met a woman

She had a mouth like yours

She knew your life

She knew your devils and your deeds

And she said

"Go to him, stay with him if you can

But be prepared to bleed".' (Mitchell, 1971)

The singer in the song has been told to be prepared to BLEED, metaphorically, not literally. In relevance-theoretic terms, it implies that the female protagonist in the song must be prepared to hurt and suffer if she is to be with the man referred to in the song. This thesis argues that a sense of the literal is maintained in metaphoric comprehension. Therefore, selected aspects of the metaphoric vehicle BLEED could be consciously represented and experienced as a holistic entity in which the protagonist of the song is mentally imaged as bleeding, possibly from a physical injury or wounding. However, depending on the addressee, different componential features may surface to consciousness such that it conveys particular non-propositional representations: a certain feeling of angst, a physiological sense of pain and a mental image constructed from component parts from memory (see section 5.3 for further explanation about the holistic/componential experience). These may all be sequentially constructed in the same way that Kosslyn *et al.* (1988) proposed for mental imagery, so that they can be mentally represented and contribute to a propositional representation

during interpretation. The framework proposed in this thesis enables a holistic experience of the componential non-propositional parts since it claims that concepts are partially extracted from the sensorimotor system and also give access to feelings/emotions.

So far, I have tried to present a clear account of how the new framework offered in this thesis combines elements from embodied cognition with those from relevance theorists. It has focussed on intuitive (perceptual and inferential) concepts. Intuitive concepts do not only consist in our tangible relation to the world (perceptual), but also our relation to abstract entities (inferential). For Horsey (2006), abstract concepts are acquired via inference rules.

So, how does acquisition work for abstract concepts? Consider the example below about a painting ‘Claudius Civilis’, commissioned to depict the glory of the forming of the Dutch nation. According to Schama (2014), ‘what they got was Rembrandt's version of history: ugliness, deformity, barbarism; a bunch of cackling louts, onion chewers and bloody-minded rebels’. It suggests the force of this painting at the time:

81) ‘Claudius Civilis is a painting drunk on its own wildness.’
(Schama, 2014)

The focus is on the last part ‘drunk on its own wildness’ to comprehend the nature of the controversial painting. It is ‘as if’ the painting is DRUNK on the WILDNESS of portraying the Dutch nation in this way. As such, WILDNESS can be seen as the *drink* that has caused the painting to create this outlandish subject matter. The metaphor, hence, takes the essence of what it feels like to be out of control when drunk to this wild degree and in which our normal judgement and values may lead to unacceptable behaviour, and maps it onto the content of the painting.

Following Zwaan (2015), an embodied cognition theorist, abstract concepts such as WILDNESS would probably conform to a mental simulation derived from experience, with less sensorimotor representations than tangible entities. In the

scenario in which an adult explains WILDNESS to a child, they would employ plenty of contextualised examples (adapted from Zwaan, 2015). For instance, daddy could explain how his messy garden due to a lack of gardening for years and the waist-high grass shows a kind of WILDNESS. If during daddy's explanation, the child activates the concepts, GARDEN and GRASS and possibly MESSY from their own experience, WILDNESS would constitute an example of a perceptual (intuitive) concept, not an inferential one, as Horsey (2006) assumes. Horsey (2006), by contrast, claims that we have an innate disposition to draw inference rules. It is unlikely that we are born with the inference rule: WILDNESS entails untamed, but that possibly an instinct exists to create relations of entailment from subordinate to superordinate categories. It enables hierarchical classifications in the style of Rosch *et al.* (1976).

Horsey (2006) provides the example of the inferential concept LIE:

When people are provided with a range of particular examples, there is a broad intersubjective agreement about what counts as a lie. However, most people are unable to verbalise the basis on which they decide that something is a lie. This suggests that we may have some intuitive, but clearly not perceptual detector for lies, the basis for which is not (readily) accessible to introspection.

The detector develops into an inferential rule, along the lines of: lie entails saying something you know opposes your beliefs, but keeping that knowledge hidden. There are no visible tangible truths or untruths in the world to make this a perceptual concept. Even though LIE is an inferential concept, Horsey (2006) suggests it is possible to acquire it as an intuitive one via perceptual clues from our contextualised experience of the world. For example, I can mentally image a situation in which someone lied to me, their facial features, gestures and a feeling in which something is not quite right. The best answer may be to accept that both possibilities exist and that concept acquisition of abstract concepts may consist in a combination of inference rules and contextualised experience in the way that Zwaan (2015) assumes. I may partially understand WILDNESS through sensorimotor representations of certain situations that contain the concept, and I could later fully possess the concept via certain innate detectors that develop the relations of entailment involved.

There may be cases, as Horsey (2006) suggests, in which WILDNESS is understood as a 'reflective concept', part of Sperber's (1997) reflective beliefs. That is to say rather than directly relating to the world, we relate by representing another's utterance or thought. For instance, the child in the previous example may attribute WILDNESS to the person that explained it to them: daddy. Acquisition through the mediation of reflective concepts does not constitute a correlation between mind and world as such, but occurs via our encyclopaedic resources. It allows identification of WILDNESS, but not full possession.

Through an exploration of the acquisition of intuitive concepts: inferential and perceptual, this section has aimed to unite aspects of Fodor (1998) and Horsey's (2006) approach to concepts to Barsalou's (1999, 2009) perceptual symbol system. If inferential or abstract concepts consist in a combination of acquisition via innately-specified inferential detectors and the embodied relations of resemblance, it is possibly the same for perceptual concepts. If I came across a CAT for the first time in the dark, and all I could see was its whiskers, I could infer that: whiskers entails animal of some kind, and have partial possession of the concept. Moreover, if accepting that concept acquisition can occur via our embodiment, does it imply that the features present in the environment and resembled in our minds have to be content constitutive to the concept, as many embodied cognition theorists claim?

5.3 Conceptual structure: embodiment and cognitive science

A contrast is drawn in this section between accounts that promote conceptual decomposition to those that uphold conceptual atomism. Atomism specifies that concepts are discrete entities with no internal structure (Sperber and Wilson 1986/1995; Fodor, 1998; Carston, 2010b). For relevance theorists, atomism does not deny that concepts give access to externally associated knowledge: encyclopaedic and logical entries. However, an attempt is made in this thesis to reconcile these, seemingly opposing, but mutually beneficial accounts.

5.3.1 Graded categories and internal structure

Spivey (2007) claims that certain formalist approaches to concepts, possibly exemplified by Fodor (1975, 1981, 1998), Sperber and Wilson (1986/1995, 2008) and Carston (2002, 2010b), have their traditions in set theory. It specifies that concepts are discrete entities with no graded overlap between categories, such that my concept of GREEN APPLE belongs to the set of apples, but not to the set of oranges (Spivey, 2007). Spivey (2007) claims that one of the necessary consequences is that concepts are atomic with clear-cut boundaries as to what is and is not accepted as category membership (Spivey, 2007). For this reason, he favours a lexical decompositional approach to concepts in that they have an internal structure. Spivey (2007) seems to misinterpret atomism since Fodor (1998) would suggest that there is no such clear-cut structure in your head; conceptual content just is this mind-word correlation.

Working from an embodied cognition perspective, Spivey (2007) raises the question of whether it is possible to neatly classify concepts in the way in which he interprets atomism. With the example of baldness, he poses the question that if, on average, we have 100,000 hairs on our heads, would having 50,000 place it into the category of baldness? In other words, where does the apparent line exist between category membership? Spivey (2007) claims that it makes more sense for baldness to be a figure of around 10,000 hairs. However, if someone has 10,001 hairs, would they be not classified as bald? Moreover, a skinhead would not be considered bald, yet they may have less hair than a bald person. Sperber and Wilson (1986, p. 165) raise a similar argument in their claim that ‘via the general principle that if a man with n hairs is bald then a man with $n + 1$ hairs is bald’, the conclusion has to be that a man with all his hair is also bald. For Spivey (2007), arguments of this nature suggest that atomism is problematic.

His view presents a wall that seems to exist between certain embodied and linguistic accounts. According to Sperber and Wilson (1986/1995, 2012), the encoded concept BALD would be glossed to mean hairless. In order to convey the slight nuances of meaning, such that it could be employed for use as the type of bald associated to skinheads or to those with 10,000 hairs, different ad-hoc

concepts BALD* and BALD** would be constructed pragmatically. As such, Spivey's (2007) arguments reveal the way in which certain embodied cognition accounts try to compress the pragmatics (the ad-hoc concept) into the semantics (the encoded concept). Semantics and pragmatics are distinct processes that explain the difference between the way certain entries are stored in cognition and how they are employed for use in utterances.

Whether atomism is correct or not, it seems that we cannot help but consciously categorise phenomena in the world into neat little packages. Spivey (2007) cites the example of a rainbow, which reflects a continuum of wavelengths from 400 to 700 nanometres, but which we perceive as distinct colours. As a consequence of evolution, he argues that we are predisposed to categorise despite the continuity in the environment and our mind/brains (Spivey, 2007). It is a result of our tendency to overplay the differences between groups while underplaying those within a certain category. For instance, the distinctions perceived within red may be less notable, than the one between red and orange, allowing us to make category separations. This disposition occurs, according to Spivey (2007), despite evidence to the contrary in which the boundaries between colour categories are fuzzy and graded, and not discrete and clear-cut as he proposes proponents of atomism and set theory claim. However, evidence of this kind only supports Fodor's (1998) atomism further because it is hard to ever know what is in the world, only that we have these conceptual structures that reflect our interaction with our environment.

For Spivey (2007, p. 146), categorisation is not a 'mental faculty that performs computations on discrete symbolic variables'. Instead, it is part of a dynamical system where language moves continuously through space and time, and in which graded classifications are the norm. Spivey (2007) makes the analogy of cognition as containing attractor basins in which the mind is attracted towards the edges of conceptual meaning, but that it never fully dives into the basin. It remains on the outskirts, in the fuzzy and graded territory. However, this does not necessarily have to be incompatible with relevance theoretic claims. The ad-hoc construction may circle the edges of an encoded category in cognition in that certain elements of their associated encyclopaedic information overlap. Despite

the interesting contribution Spivey (2007) makes to the idea of continual cognitive processing, his account seems to lack an understanding of what atomism is, and neither accounts for the differences between the encoded and the ad-hoc concept. Few linguists working in pragmatics would claim that words neatly map onto concepts in a one-to-one fashion.

Lamberts' (2000) model of simulation categorises animal concepts into certain content-constitutive features. The model predicts which category an animal belongs to through probability and knowledge about its related features (Lamberts, 2000). For instance, WHALE aligns with: fins (limbs), water (environment), warm (blood temperature), air (oxygen source) and live (birth mode). As such, the model predicted that WHALE is 0.6 mammal and 0.4 fish (Lamberts, 2000). The implication is that category membership is fuzzy, not discrete, and so implying that concepts must have an internal structure of features. In relevance-theoretic terms, encyclopaedic knowledge associated to concepts may vary from person to person. For Fodor (1998) and Carston (2010b), it would not constitute content since the adding or subtracting of features does not alter concept identity. I have only recently discovered that whales can give birth up to 40 years old, but the content of my concept WHALE has not changed; because of this, these features do not seem to be content constitutive in the way that Lamberts (2000) presumes.

Barsalou (1993) performed a study by pooling together what he presumes to be the internal features of encoded concepts, compiled from all participants in his previous experiments on definitions. He presented these to a new set of participants, and asked them to judge the validity of the features for certain concepts. The results showed 97% overlap between subjects and a 98% overlap within subjects. Barsalou (1993) argues that the information stored in long-term memory is largely stable, but when it is retrieved for use, different subsets of the knowledge are accessed. The stable meaning is the core meaning with its context-independent features that are reliably activated on concept retrieval. The subset of features are the context-dependent ones, which would be the ad-hoc concept in relevance-theoretic terms.

A line from Joni Mitchell's song 'Shades of Scarlett Conquering' illustrates Lamberts' (2000) and Barsalou's (1993) view about the role of the core meaning in the long-term category in cognition:

82) 'Out of the fire and still smoldering

She says "A woman must have everything"

Shades of Scarlett Conquering.' (Mitchell, 1975)

Mitchell's (1975) lyrics, in the broader sense, seem to depict a Scarlett O'Hara character type: a fallen woman whose frailties are expressed through a high-status and demanding demeanour. The metaphor presents a contradiction between her frail, but cold and hard nature, instigating feelings of both compassion and aversion in the hearer/reader. The long-term categories: SHADES, SCARLETT and CONQUERING would store all the inherent features. For instance, a blog on a website entitled 'Behind the Name', listed approximately ninety different users' opinions on the name SCARLETT (Campbell & Campbell, 2009). The following have been taken from that list and could be viewed as the encoded stable features in much the same way as Barsalou's (1993) experiments:

Feminine name, red, different shades of red, passion, fiery, femme fatale, Miss Scarlet in the game clue, young, sinister, beautiful, tempestuous, headstrong, stylish, exotic, hot-headed, strong-willed, edgy, female character from Gone with the Wind, expensive woollen cloth, spunky, classy, sophisticated, mature, snooty, brash, bold, pretentious, upmarket, feminine, pretty, an image of a pale girl with long red hair, loving spirit, colour of blood, trashy, having a sensual allure, scarlet fever, rhymes with harlot, slutty, cheesy and cheap lap-dance girl, suffering through pain, courage, strong. (Campbell & Campbell, 2009).

Once SCARLETT is understood in the context 'shades of Scarlett conquering', only a subset of the core features of the concept would be communicated for use, such that: passion, sensual allure, edgy, suffering through pain (feelings), an image of a pale girl with long red hair (mental image), colour of blood (visual colours), snooty, brash, pretentious (attitudes) and femme fatale, headstrong, strong-willed, beautiful (encyclopaedic knowledge) would be represented in the

mind of the addressee. The important point is that these features for Lamberts (2000) and Barsalou (1999) are concept internal, and so necessary for the identity of the concept, which this thesis suggested was problematic.

By contrast, relevance theorists would claim that the encyclopaedic knowledge is associated with the lexically encoded concept SCARLETT in the atomistic way. It would most likely include: pretentious, femme fatale, headstrong, strong-willed, beautiful. Contrary to the proposals made in this thesis, the relevance-theoretic approach does not generally associate non-propositional features to concepts in cognition, and if they do, they are not the types of entities that can undergo inference. Despite the discrepancies between embodied cognition and relevance theory, this thesis suggests that what is important is the division between the context-independent features, associated with the lexically encoded concept, and the inferentially derived, context-dependent properties for the ad-hoc concept (Rubio-Fernández, 2013).

The focus in this section has been on the encoded concept in cognition, and the way in which it can provide access to associated, rather than internally structured, propositional and non-propositional features. To clarify the reasons why this thesis adopts an atomic account, section 5.2.2 follows Fodor's (1981, 1998) arguments about how the definitional approach does not work.

5.3.2 Fodor's atomistic account

Fodor (1975, 1981, 1998) disagrees with the decompositional view of concepts since, for him, internal structure implies a definition. For a concept to be defined, it must satisfy the logical relations of necessary and sufficient conditions (Carston, 2002). In other words, for a concept to be true, it has to fit all of the concept-internal defining features (Carston, 2002). In essence, a definition relies on the logical relations of entailment and contradiction. The more pertinent question to be asking is whether necessary and sufficient conditions are the appropriate means to determine a concept's internal structure. Indeed, as Linky claimed 'never try to give necessary and sufficient conditions for anything' (Fodor, 1975, p. 99)

Fodor's (1981) example illustrates the futility of the definitional approach. His account goes something like this: PAINT could be defined as 'X covers the surface of Y with M' (in that Jim covers the wall with paint), but this is a necessary, not a sufficient condition since it only has a one-way entailment (Fodor, 1981, p. 287). Although PAINT can mean 'X covers the surface of Y with M', not all instances of the definition would mean PAINT (Fodor, 1981, p.285). For example, one could imagine an explosion at a paint factory, leading to people being covered in paint when the intention was not to perform this action at all (Fodor, 1981). Fodor (1981, p. 287), therefore, revises the definition to include an idea of agency in that 'X paints Y iff [if and only if] X is an agent and X covers the surface of Y with paint'. However, in the situation in which Michelangelo was painting the Sistine Chapel, Fodor (1981, p. 287) argues that this action could hardly be called 'covering a surface' as it entails a little more artistic licence than the definition allows.

A final attempt by Fodor (1981, p. 287) offers the following lengthy and convoluted definition: 'X is an agent and covers the surface of Y with paint, and X's primary intention in covering the surface of Y with paint was that the surface of Y should be covered with paint in consequence of X's having so acted upon it'. The intentional element here would, therefore, cover cases of artistic intent. However, he suggests that dipping one's paintbrush into a paint pot would count as an intentional covering of a surface of the brush, which is the consequence of being dipped into the pot (Fodor, 1981). The question is whether the dipping of a paint brush into a paint pot should be considered part of the meaning of paint. Clearly, the answer would be no.

Quite apart from this, the definitional approach also stipulates that the concepts in a definition need to be acquired prior to the acquisition of the target concept. Fodor (1981, p. 287) wonders how a child would be capable of acquiring a complex concept as PRIMARY INTENTION OF AN ACT before PAINT, especially when PAINT is a basic-level category in Rosch *et al.*'s (1976) terms. No one would counter the unnecessary complexity of the proposed definition. Quite simply, definitions do not work in terms necessary and sufficient conditions. As

such, how are we to understand the nature of these componential sensorimotor features that embodied cognition theorists argue for, which capture the intuitions of the role of non-propositional entities.

5.4 Embodied cognition and concepts

This section presents an embodied cognition account of concepts to more fully explain the non-propositional componential features, introduced in section 5.2. By ‘embodied’, Barsalou (1999, 2009, 2012), Richter and Zwaan (2010) and Damasio *et al.* (2004) refer to the way that concepts are grounded in the sensorimotor system. Damasio (1994, 2000) also highlights the way in which concepts can give access to feelings/emotions, and so a physiological response to the world. This section also draws a contrast between the sensorimotor aspects of a concept from an embodied perspective and how Horsey (2006) and Landau (1994) view these as part of the mechanisms responsible for acquisition.

5.4.1 Barsalou on conception

Although arguing for an embodied or grounded cognition, Barsalou (2012) does not deny a categorical difference between perception and conception. In his view, for instance, vision and imagery (perception) evoke qualitatively different representations to conception in their sense of orientation, light and colour. Nevertheless, conceptual representations interpret representations in perception because there is no informationally encapsulated division (see chapter three). In contrast to what many amodal theorists believe, embodied or grounded concepts are capable of categorisation and generating an infinite number of propositions and inferences in cognition.

For Barsalou (2012), categorisation is the process of matching a perceived or imagined entity with a mental concept: token to type. A perception can occur in all sensory modalities, and they can all be categorised. For instance, it could be categorising a crash as a certain type of sound, jumping as a particular movement or smoke as a specific smell. It is also possible to categorise particular cognitive states, such as belief, or the affective state of worry. Barsalou’s (2012) claim is

that on perceiving an entity, the mind/brain simulates these conceptual representations. Once several instances of a category have been encountered, a simulator represents the concept alongside its multi-modal information: sensorimotor, affective, physiological and encyclopaedic. For instance, I could hear the voice of my sister and simulate a representation of her: the lightness of her voice, her slight build and her cautiousness. These simulations may activate the associated name: <Charlie>.

Once a perceived or imagined entity has been allocated to a conceptual category, such as voice to MY SISTER, it can activate further conceptual knowledge in the production of inferences that ‘go beyond what has been perceived’ (Barsalou, 2012, p. 241). Barsalou’s (2012) ideas about inferential procedures working over concepts, although somewhat simplistic, acknowledge a semantic/pragmatic distinction. As relevance theory would presume, inferential pragmatic procedures are required to flesh out the intended speaker meaning behind the encoded concepts. Barsalou cites the following sentence:

83) ‘Mary pounded the nail into the wall.’ (McRae, Spivey-Knowlton and Tanenhaus, 1998)

Through employing the use of background knowledge, Barsalou (2012) states it is possible to work out that Mary used a hammer. While his use of the example seems straightforward, it also shows a complete lack of guidance as to how the inferential procedures might be constrained. For instance, how would Barsalou (2012) account for the ad-hoc concept POUNDED* in which only some of the long-term category’s features are selected? What narrows down the cognitive search for the relevant interpretation of the whole utterance? These are all questions I believe that relevance theory is able to answer succinctly (see chapter two), hence one of the reasons for unifying these accounts into a new framework.

Under Barsalou’s (2012) approach, a proposition simply is the categorical operation of matching the entity or token to conceptual type, and so does not have truth conditions, as Sperber and Wilson (1993) propose. As Barsalou claims:

The conceptualizations that underlie language production are similarly assumed to rely on systems of propositions. As people conceptualize what they want to describe, they categorize individuals related to the topic under discussion, which produces type-token propositions ... As the propositional representation develops, concepts in it activate associated words and syntactic structures, which then surface in utterances. (Barsalou, 2012, p. 241-242)

For Barsalou (2012), a proposition is constructed out of concepts, which are matched to particular entities in the world. Under his view, it is possible to determine whether those matches are true or false (Barsalou, 2012). Does my concept CHESTNUT match to actual chestnuts in the world? Entities fall under the correct conceptual label because there is a relation of resemblance between perceptual input acquired from the world and the correlating conceptual mental symbol. This thesis supposes that non-existent, fictional and hypothetical entities would be determined by repeated encounters of their use, such as with the abstract concept WILDNESS (see section 5.2). However, would it be possible to match my concept GHOST, to entities in the world? It depends on your world view, of course, but relevance theorists would no doubt state that it is possible to imagine the conditions under which this were true. This is because they have an understanding of the truth conditions of the proposition expressed by an utterance. This thesis argues that it is precisely this capacity for relevance theory to move beyond the actual that is missing from Barsalou's (2012) embodied cognition account. For instance, by having truth conditions, it is possible to imagine possible or actual worlds to know whether the conditions pertain; and the relevance-theoretic notion of inference rules for abstract concepts enables a relation to abstract entities that we cannot perceive as such.

5.4.2 Psycholinguistic evidence for an embodied view of cognition

The aim in this chapter is to develop an approach that unites aspects of embodied cognition with relevance theory in accounting for metaphoric interpretation. Barsalou (1999, 2009) and Richter and Zwaan (2010) propose that concepts activate non-propositional entities capable of being mentally represented and so contributing to thought. For Horsey (2006) and Landau (1994), these sensorimotor aspects are given secondary status. This section contrasts their views.

Evidence from Richardson *et al.* (2003) supports Barsalou's (1999, 2009, 2012) claim that there is a correlation between language processing and the sensorimotor systems. They aurally presented subjects with sentences in which the verbs demonstrated either a vertical or horizontal movement (Richardson *et al.*, 2003). The participants would hear a sentence, such as: 'the ship sinks in the ocean', while being presented with two visual images oriented either vertically or horizontally (Richardson *et al.*, 2003, p. 779). Recognition of the images improved if the sentences matched the orientation of the picture: <sinks> with a vertically oriented image. It suggests that our embodiment affects the way we understand words and concepts.

Zwaan, Stanfield and Yaxley (2002) found similar results in that certain shapes denoted by sentences lead to faster recognition of the shape of an object or animal presented in a picture. For instance, a picture of an eagle with its wings outstretched was recognised faster than one with its wings folded upon hearing the sentence 'the ranger saw the eagle in the sky' (Zwaan, Stanfield & Yaxley, 2002, p. 168). For these authors, the difference between the two possibilities: 'the ranger saw the eagle in the sky/nest' is not fully captured by propositional explanations within an amodal system. In their view, the visual prime of outstretched wings means flying whereas folded implies being in a nest. The suggestion is that the sensorimotor representations activated by the visual primes underlies conceptual access for SKY and NEST. For Zwaan, Stanfield and Yaxley (2002, p. 168), such distinctions can only be registered by a system in which 'perceptual representations rather than amodal propositions are the building blocks of cognition'. The suggestion that perceptual cues, such as shape in the environment aid concept identification or acquisition is not completely dissimilar to Landau's (1994) and Horsey's (2006) findings (see section 5.2). The difference is that they claim that shape, size and so on would be programmed into the inferential mechanisms that aid acquisition, and so cognition would not resemble the world in the same way.

Richter and Zwaan (2010) claim that Zwaan, Stanfield and Yaxley's (2002) research is indicative of a mind/brain that can amalgamate information related to colour and shape in a multiplicative fashion:

The perceptual representation that is activated by the word *tomato*, for example, might be based on an object representation that is formed by an interactive integration of both a red colour and a round shape rather than an additive combination of separate representations of red and round. (Richter & Zwaan, 2010, p. 8)

With objects that denote a specific colour and shape, such as an orange, when there was a match of both colour and shape (orange and round) from a visual prime to the target word (<an orange>), subjects were faster in their semantic tasks of classification and lexical decision. The quicker response times for word access for a combination of features suggests that the perceptual representations are not being processed in a linear and additive manner, but rather holistically. It is consistent with Horsey's (2006) gestalt-type experience, constructed from a juxtaposition of features. Moreover, under a multiplicative view of integration, the implication is that the mind/brain functions more efficiently when it perceives high levels of resemblances between visual primes and target words. More importantly, Richter and Zwaan's (2010) evidence cannot be explicated if one adopts an amodal perspective. If perceptual features are mere rules in the inferential mechanisms hard-wired into conceptual templates, why would the processing of additional features be quicker? This provides substantive evidence in favour of an embodied cognition.

In order to move from componential features to a holistic-type experience, a unifying mechanism is required, such as the convergent zones discussed in chapter four:

Conceptual representations are based on re-enactments of patterns of neuronal activation in sensory-motor areas of the brain ... stored by neuronal assemblies called *convergence zones* ... distributed in higher-order association cortices, limbic cortices, and subcortical nuclei such as the basal ganglia and amygdala. (Damasio *et al.*, 2004, cited in Richter & Zwaan, 2010, p. 37)

Through the use of lesion studies, Damasio *et al.* (2004) have located certain regions of the mind/brain that conform to convergence zones: familiar faces in the right temporal lobe, lateral occipital cortices and angular gyrus; and tools in the left mesiotemporal. If I hear the word <axe>, providing access to my encoded concept AXE, the convergence zones in the left mesiotemporal activate the relevant sensorimotor regions. These zones work to unify all the representations into one unit or concept. In a manner analogous to Barsalou (1999), these convergence zones re-enact a pattern of activation that resembles the original perception of the axe (Richter & Zwaan, 2010, p. 37). In fact, Horsey (2006) also talks of supra-modal capacities in which all aspects of a concept are united: eyes, nose and mouth for FACE.

The example below illustrates the nature of resemblance:

- 84) ‘Whether it is indexical or encyclopaedic, a [mental] file contains all the predicates which the subject takes the referent of the file to satisfy.’ (Recanati, 2009, p. 16)

The metaphor MENTAL FILE is employed to understand the mind/brain’s capacity to store data. Firstly, the recipient of the sentence may access the encoded concept FILE from memory and construct a schematic mental image of a file alongside encyclopaedic knowledge, such as stores data, to produce the temporary conceptual construction FILE*. The mental image of the encoded concept FILE would *resemble* the original perception of it. Hence, these relations of resemblance conform to the literal meaning of the encoded concept, which are carried over to MENTAL. As Rubio-Fernández’s (2007) experiments demonstrate, an aspect of the literal is retained in metaphor comprehension even in contexts that are weighted strongly towards a metaphorical reading. For instance, in the following metaphor:

- 85) ‘After six months without going to the barber, John was a lion.’
(Rubio-Fernández, 2007, p. 361).

She argues that the literal meaning remains active up to 400 to 1000 milliseconds after the metaphor vehicle LION has been heard. It is only when the conscious, attentional processes begin that the metaphor-irrelevant properties are suppressed (Rubio-Fernández, 2007). It is possible to say that in example (84) after hearing FILE, the ensuing mental image may remain active up to 1000 milliseconds.

If it is accepted that propositional and non-propositional conceptual features are associated to a concept, as this thesis argues for, what remains to be clarified is how this can be reconciled with the relevance-theoretic view of concepts.

5.5 Relevance theory: encyclopaedic and logical entries

The goal of this section is to examine exactly what relevance theory means by associated information. It further addresses how the new framework offered in this thesis can combine the relevance-theoretic model of communication and cognition with Barsalou’s (1999, 2009) relations of resemblance.

The encyclopaedic entry consists in propositional representations resulting from a person’s entire world knowledge and personal experience about a particular entity (Carston, 2010b). An utterance expresses a proposition, the constituents of which are concepts. However, the encyclopaedic entry of a concept provides access to chunks of propositional knowledge. Such knowledge would be truth evaluable, thus stipulating the conditions under which they would be true. Without wanting to fully equate the terms, in Quine’s (1951) view, the encyclopaedic entry relates to the synthetic part of knowledge, derived from the world. To illustrate, my concept WHALE could provide access to the following epistemic representations: my sightings of whales off Sydney Harbour; being told that female orca whales can give birth up to forty years old; and watching ‘Whale Rider’ with my nephews. None of this experiential knowledge counts as ‘a priori’, innate or, in Quine’s (1951) term, ‘analytic’ knowledge.

Carston (2010ab) has suggested that the encyclopaedic entry includes mental imagery, so that a mental image of a WHALE could be activated in certain contexts. This being the case, on their model of language use, the encyclopaedic entry needs redefining to allow for non-propositional elements. Carston (2002) argues that mental images are represented in analogue format, not as discrete propositional representations as with the remaining encyclopaedic information; it is unclear, however, how these analogue representations are to be accommodated within her modular view of an amodal mind:

I assume the mind to be modular, to at least the extent that Jerry Fodor (1983) has proposed and defended- the language processing system being a primary case of such a dedicated encapsulated system. (Carston, 2010b, p. 217)

The presumption is that perceptual or other non-propositional information (such as mental imagery) cannot be represented in the conceptual part of cognition, as explained in chapter three. In order to do so, it would require a loosening of the informationally encapsulated part of a module for the ‘input systems’ so that they can be accessed by conceptual and propositional representations. It is only in such a case that the encyclopaedic entry could represent non-propositional entities. An embodied approach to cognition bypasses these obstacles since it does not go along with the idea that modules are blind to the workings of other modules (Coulson, 2006; Kutas, 2006).

The logical entry refers to the analytic implications of a concept, specified by meaning postulates or inference rules (Carston, 2002, Horsey, 2006). An example is how the concept WHALE entails that it is a mammal or: *if X is a whale, then X is a mammal*. It is not a definition, but more of a superordinate category (Carston, 2002, 2010b; Rubio-Fernández, 2007). Hall (2010) states that there may be a number of logical entries such that WHALE may also imply *X is an animal*. In relation to Quine (1951), it may be seen as an expression of an analytic truth as in a truth that exists and does not change subject to the way the world is. For reasons of stability, the inferential relations seem to be considered content-constitutive for certain relevance theorists (Sperber & Wilson, 1995; Carston, 2010b; Hall, 2010; Horsey, 2006).

For Horsey (2006), however, the notion of content constituency does not imply that concepts are decompositional or complex in the way that the definitional approach suggests. This thesis assumes that when Horsey (2006) talks of content constituency, he means that certain information is reliably activated on retrieval of a concept. Likewise, Rubio-Fernández (2013) talks of the distinction between context-independent and context independent features of which the logical entry seems to be a context-independent one, without necessarily confining it to an internally defined feature. The logical entry, thus, equates with the literal meaning of the concept, consisting in relations of entailment.

Fodor (1998) has challenged the possibility that inference rules (inherent in the logical entry) can be internal to a concept because of the complications of an analytic-synthetic division. Quine (1951) objected to analytical truths in which meaning remains the same in spite of the way the world is. For instance, the analytically true concept BACHELOR entails ‘unmarried’ and ‘man’, yet to initially arrive at its meaning, the world is required to comprehend the necessary qualities and traits. Accordingly, synthetic truths seem to exist for every concept and sentence uttered, and so seeing the logical entry as analytic might cause difficulty.

Contrary to Fodor (1998), Horsey (2006) questions whether content-constitutive inferences and analyticity are the same. Citing Boghossian (1997), he proposes that content-internal inferences, or the logical entry, can be valid for a person without being valid *per se*. Horsey (2006, p. 74) counters Quine (1951) and claims that the logical entry is ‘psychosemantically analytic’, meaning that it need not confer an absolute truth about the world, but a truth that is psychologically real to the person. The benefits are that it still allows inference rules to express relations of entailment without providing a definition (Carnap, 1952). For Horsey (2006, p. 39), inference rules are enacted in a computational format occurring within our ‘mental logic’, which is different to propositional representations. Computations are considered faster and more reliable than representational knowledge as the latter depends on context and memory, meaning it is a slower and less reliable process.

In short, this thesis has suggested a synthesis of ideas. The example below demonstrates how I follow Rubio-Fernández's (2013) assumptions that the associated encyclopaedic and logical entries are context-independent features or properties, and further suggest that her ideas can be combined with notions of non-propositional content from embodied cognition. The example is taken from Spivey (2007) since his metaphoric expression below can be used to demonstrate Rubio-Fernandez's (2013) point:

- 86) 'Why would a mind work in a staccato fashion of entertaining one discrete stable nonoverlapping representational state for a period of time, and then instantaneously flipping to entertain a different discrete stable nonoverlapping representational state for another period of time?' (Spivey, 2007, p. 3)

STACCATO could be glossed to mean short, disconnected sounds in music or in speech. The associated logical entry would be 'psychosemantically analytic', allowing for individual differences. Therefore, STACCATO would entail 'a type of sound'. For a non-musical person like myself, an encoded concept of this nature may not be so clearly defined as it is for a musician. It may provide access to other associated properties, such as encyclopaedic: 'short, abrupt sounds', and non-propositional: 'an example of disconnected sounds (aural)'. In the context of (86), I would drop the logical entry to 'an (actual) type of sound'. The encyclopaedic knowledge of 'abruptness' along with a partial resemblance of 'disconnected (staccato string) sounds' would aid in the inferentially developed occasion-specific concept STACCATO*, which would be transferred over to THE MIND. What makes it different to the relevance-theoretic approach is that the relation between the recreated perceptual input of disconnected sounds (aural) and the mental symbol STACCATO is one of resemblance.

5.6 Ad-hoc concepts

The previous two sections have predominantly focussed on the encoded concept. The role of the encoded concept is to store and organise information of which

subsets are made available on different occasions of use. If concepts evoke the analogy of a file, ad-hoc concepts are what Allott and Textor (2012) call ‘mental notes ... written for a particular occasion’. This section intends to explore the psycholinguistic and relevance-theoretic notions of the ad-hoc concept and the role it plays in metaphoric interpretation.

5.6.1 Psycholinguistic literature: ad-hoc flexibility

Barsalou (1983, 1993) originally introduced the notion of an ad-hoc concept: a temporary and flexible conceptual construction in working memory. He does not deny there is categorical knowledge in long-term memory, the encoded concept for relevance theorists, but that is not what is generally communicated in a given exchange. The temporary ad-hoc concept allows humans to understand utterances, categorise objects and think rationally about these classifications during communication, problem solving, decision-making and so on (Barsalou, 1993). In other words, its presence in cognition influences behaviour.

Rather than accessing a stable set of features, an occasion-specific concept makes different features available, depending on the context. To demonstrate its flexibility, a study by Barclay *et al.* (1974) looked at the word <piano>, heard in two separate contexts: moving furniture and producing music. In the moving furniture scenario, cues related to ‘weight’ enhanced the retrieval of the word <piano>; however, in the music production situation, cues related to ‘musical properties’ produced optimal retrieval of <piano>. It suggests that different contextual uses of a word prime different features. It points, thus, to the flexible nature of how features are constructed in cognition. For example, the feature ‘shelter from rain’ might not be activated by the concept NEWSPAPER when reading it on a Sunday. However, on the occasion that I forget my umbrella and hold a newspaper over my head, that is how I might mentally represent the meaning of the word. Barsalou (1993) created the term ad-hoc to cover these types of novel constructions that are created on the fly.

Features in ad-hoc concepts also vary between different participants. Barsalou, Sewell and Spindler (cited in Barsalou, 1993) asked participants to produce lists

of the decomposable features for certain ad-hoc concepts, and the results demonstrated that only 44% of the features overlapped between subjects. For instance, the ad-hoc concept HEAD OF SCHOOL*, activated in a particular scenario in which grievances are involved, may give access to CORRUPT and MISOGYNISTIC, but that my construction may differ from yours. Further, within one individual, 66% of features were shared over time, yet 34% were distinct on different occasions of access. The context-dependent features in ad-hoc constructions are involved in the inferential development of new entities in cognition. The features would no doubt be determined by relations of resemblance between the sensorimotor system and mental concept. Nevertheless, section 5.2 questioned whether it is possible to broadly categorise all concepts as constituting relations of resemblance and not adhering to any inferential rules of entailment, especially for abstract and non-existent entities.

5.6.2 A relevance-theoretic view

The fact that the meaning communicated by a word is often different to the concept it encodes is now a generally accepted premise in relevance theory (Sperber & Wilson, 1995; Carston, 2002, 2010; Wharton, 2009; Hall, 2010). Depending on its use, a concept can communicate a number of different occasion-specific concepts, distinct from what they encode (Sperber & Wilson, 1995, 2012; Carston, 2002, 2010b; Wharton, 2009; Hall, 2010) (see chapter two). Consider the example in (87):

87) My breath feels constricted (said in the company of arrogance).

a) CONSTRICTED – literal use.

b) CONSTRICTED* metaphor.

The input of the concept, to the mind of the addressee, would be defined as relevant if the processing context yields enough cognitive effects to be worth the processing effort (Sperber & Wilson, 2002, 2012). The most salient effects in the mind would be the implications as to the intended speaker meaning (Wilson, 2011). On hearing the word <constricted>, the mind accesses the encoded

concept CONstricted. The hearer then follows the relevance-theoretic comprehension heuristic, undergoing a mental sorting process to arrive at the relevant implication, satisfying their expectation of relevance (Wilson, 2011).

Following Wilson (2011), the literal use in (87a) would gain relevance if uttered in the presence of a group of people that exhibited arrogance and denigrating behaviour. As a result, the speaker's chest would literally feel tight and their breathing restricted. By contrast, the metaphoric use suggests that the speaker felt emotionally CONstricted* and inhibited due to the egotistical attitudes of those around her. Although the physical environment seems to remain constant, there are subtle emotional and psychological differences that change the intention to communicate a distinct pragmatically-derived meaning of the encoded concept.

Carston (1996a) discusses the process of concept narrowing in which a subset of features in an ad-hoc concept are selecting as a narrower denotation than the encoded lexical concept. To illustrate:

88) Have you got a RED PENCIL*?

On hearing (88) in a staffroom, the hearer may narrow down the encoded lexical concept to derive a certain sub-type, RED PENCIL*, used by a teacher to mark an assignment. The concept of narrowing led onto ideas about how an encoded concept could also be pragmatically modulated through broadening:

The pragmatically derived concept may be more specific or more general than the encoded concept; that is, its denotation may be either a proper subset or a superset of the denotation of the linguistically encoded concept, or it may be a combination, both extending the lexical denotation and excluding a part of it. (Carston, 2010b, p. 242)

The consequence is that the extension of an ad-hoc concept is more specific if it is narrowed and less specific if it is broadened. The example of metaphor in (87b) is an instance of broadening in which, according to relevance theory, one of the logical properties is dropped, so that its applicability or extension is widened (Carston, 2002; Hall, 2010). The logical property of the concept CONstricted, within a relevance-theoretic framework, could be: *if X is constricted, then X is*

physically narrowed in some way. Therefore, the logical entry *X is physically narrowed in some way* would be dropped from the interpretation. The ad-hoc concept is now able to apply to a range of entities, broader than the original set, in this instance, the emotions.

Following Rubio-Fernández (2007), the encoded concept provides access to a stable logical entry, which is maintained up to 1000 milliseconds after being heard, before it is dropped during the conscious part of novel metaphoric comprehension. On the approach offered in this thesis, the lexically encoded concept also activates a subset of encyclopaedic, sensorimotor, affective and physiological information in the formation of an ad-hoc concept.

By way of illustration, the following sentence was uttered by a Channel 4 news reporter in a broadcast describing the aftermath of the Paris massacres in November 2015:

- 89) ‘And then there are bicycles, belonging to people who are no longer alive to unchain them- now tethered to grief with flowers.’
(Frie, 2015)

The metaphorical utterance communicates the following encoded concepts: the BICYCLES are TETHERED to GRIEF with FLOWERS. The logical entry of TETHERED might be: *If X is tethered, then X is physically tied*, which is dropped from the interpretation. In the creation of the ad-hoc concept TETHERED*, the feature ‘being tied’ is selected from encyclopaedic knowledge while ‘the physical sensation of being tied’ is selected from an associated physiological representation. As part of the relevance-theoretic parallel processing, TETHERED* is transferred over to GRIEF*. In the context of (89), GRIEF* communicates a certain sort of ‘horrifying sadness’ that occurs in the face of a massacre (an amalgamation of encyclopaedic, affective and physiological features). It may be that the feature of ‘general sadness’ will be dropped from the encoded concept in the construction of GRIEF*. The FLOWERS* left as a symbol to commiserate the dead, are now performing the action of TETHERED* in place

of 'rope'. It communicates a sense of the immense suffering of the families of the dead.

Following Wilson (2011a), this thesis argues that the associated encyclopaedic entry is not the same thing as the semantic content of the concept. What it provides is a resource of possible contextual assumptions whose activation depends on how relevant they are to the input (Wilson, 2011a). The account offered in this thesis suggests that the associated properties needs to extend to non-propositional ones, which can be facilitated by embracing Barsalou's (1999) perceptual symbol system of cognition.

5.7 Conclusion

The central aim in chapter five has been to further develop the new framework offered in this thesis which combines Barsalou's (1999, 2009) perceptual symbol system with relevance theory's inferential account of communication and cognition. It began at the conceptual level and aimed to reconcile Fodor's (1998) and Horsey's (2006) views on conceptual acquisition with Barsalou's (1999, p. 584) theory about the way that our mental concepts *resemble* the sensorimotor representations they were extracted from. This synthesis of ideas enables a thorough understanding of the inferential mechanisms involved in language use with assumptions about the role of the non-propositional.

This chapter has also argued that the account offered in this thesis could unite Barsalou's (1999) relations of resemblance with the relevance-theoretic notion of interpretative resemblance. The ad-hoc concepts inferentially developed to understand a speaker's metaphoric meaning resembles the encoded category by way of logical, encyclopaedic and non-propositional entities. The chapter has also provided substantive evidence from the embodied cognition to support the claim for the perceptual symbol system. This view of cognition is grounded on the assumption that there is a two-way interaction between perception and conception. In other, words it proposes a parallel view of the mind/brain. The next chapter explores the consequences of proposing a parallel view.

Chapter six: Parallel processing and a cognitive kick

6.0 Introduction

To account for the role of non-propositional information, this thesis has developed a new framework for understanding, synthesising elements of the relevance-theoretic inferential comprehension procedure with embodied views of a concept and the perceptual symbol system of cognition. To warrant such views, this thesis has suggested that the ‘input systems’ (in Fodorian (1983) terminology) are not strictly informationally encapsulated from the conceptual and propositional regions of cognition in which utterances are processed. Positing a more flexible notion of a module has certain repercussions. In relevance-theoretic terms, it would mean that it is not only the explicature and the implicature (pragmatics) which are processed in parallel, but also the semantic, syntactic, phonetic and phonological representations. For the present purposes, I confine the argument predominantly to the semantic level, and partially to the syntactic. The theme of this chapter is to explore the possibility for utterance interpretation to be truly parallel: pragmatic and semantic.

This chapter shows that the evidence in favour of a parallel processing approach for semantics and pragmatics is far from definitive, but that it is an area that requires further research. Evidence from the embodied and philosophical literature about a parallel model have been criticised for distinct reasons. While there are a few key studies that endorse a parallel model, the evidence remains inconclusive. The chapter suggests that the answer may be to deny that there is a semantics module, so that the domain-specific pragmatics module can directly access the area for word recognition. This chapter also addresses the notion of aesthetics and the pleasure we derive from the unusual combination of the novel and the familiar (Giora *et al.*, 2015).

There are different definitions of semantics. According to Clark (2013), in relevance theory, there are two kinds of semantics. There is a translation from word to concept. Alternatively, there is mapping from our thoughts onto states of affairs in the world (Clark, 2013). This chapter focuses on the first definition and

aims to merge it with ideas from embodied cognition. Semantics within embodied cognition refers to a verb's argument structure, which denotes different thematic roles for its arguments (Garnsey *et al.*, 1997).

Language comprehension can be viewed through different lenses. As such, Carston argues for:

[A] mechanistic sub-personal theory by proposing that the comprehension system is a mental *module*: it is fast and automatic, and, more crucial to the position, it is domain-specific, in that it is activated exclusively by ostensive stimuli and employs its own proprietary concepts and processing strategies and routines. (Carston, 2002, p. 7)

Language is explained by certain automatic processes that occur below the level of the conscious person, at what she terms the 'sub-personal' level, a term based on Dennett's (1969) personal/sub-personal distinction. Taking Dennett's (1969) example of 'pain', the personal level may have access to the concept and so the thought of being in pain. It relates to our rational capacities as humans, but to explain the causal connections between our interconnected parts, 'the machinations of the brain', it is role of the sub-personal level (Elton, 2000, p. 2). Under a relevance-theoretic view, utterance interpretation is the result of sub-personal processes: the decoding of a sentence within the input systems or language module (semantics); the inferential development of the output of the language model by the deductive device (Carston, 2002). More specifically, these sub-personal procedures are responsible for developing three levels of representation: the 'logical form' of the utterance (the output of decoding); and the 'explicature' and the 'implicature' (products of inferential mechanisms) (Sperber and Wilson, 1986/1995, 2012; Carston, 2002; 2010b). The logical form is developed prior to the explicature and implicature, following a linear feedforward processing model: semantic then pragmatic.

According to Kutas (2006, p. 292), modular accounts, such as relevance theory, presume that 'contextual meaning effects were expected to occur relatively late in the sequential analysis of serialised language inputs'. For her, language cannot be perceived as an input that requires interpretation since it is the result of various

levels of semantic and pragmatic interpretation working in conjunction (Kutas, 2006). In a manner analogous to Coulson's (2006) argument for a model of cognition that communicates in a feedforward and feedback manner for vision (see chapter four), this chapter explores whether utterance interpretation can be explained by simultaneous interaction of linguistic structures and encyclopaedic knowledge.

Section 6.1 contrasts the interactive model of cognition with the serial autonomous model to understand the key differences. The interactive model is proposed to constitute parallel processing, but it fails to address the contribution that pragmatics makes to utterance interpretation. Section 6.2 outlines Recanati's (2002, 2004) conception of a parallel processing model, which seems to incorporate a basic level of a verb's argument structure, the domain of semantics, into a pragmatic account of language use. Section 6.3 examines the embodied literature and attempts to provide a balanced view of whether brain imaging and ERP studies support a parallel processing model. Section 6.4 finds justification for the relevance-theoretic approach through experimental evidence that warrants the claim of a trade-off of cognitive effects and mental effort. Giora *et al.*'s (2015) work extend the idea of cognitive effects to suggest that metaphors also function to give us pleasure: we get a cognitive kick out of an aesthetic experience.

6.1 The interactive and the serial autonomous models

This section draws a contrast between the serial autonomous model and its linear mode of processing and the interactive model in its claim for a parallel processing approach. This section shows that despite the support for an interactive model within the embodied cognition literature, it seems to conflate the pragmatics into the semantics, and so presents a less-than-ideal solution to novel metaphoric interpretation.

A serial autonomous model predicts that the syntactic representation of an entire sentence is developed primarily in isolation, and then correlated with a semantic one (Harley, 2005). It is the result, Harley (2005) claims, of how research in the

past focused on syntactically, rather than semantically, ambiguous sentences. An example is:

90) 'Enraged cow injures farmer with axe.' (Harley, 2005, p. 264)

The ambiguity in meaning is due to the sentential structure such that the prepositional phrase 'with axe' could attach either to the NP 'the farmer' or the NP 'enraged cow'. It is unlikely that it is the cow wielding the axe, and so it would attach to the NP 'the farmer'. Syntactic parsing constitutes assigning the perceptual input of the word to different syntactic categories (such as a noun, verb or adverb). These word-level representations are then grouped into the phrase level (noun phrase, verb phrase and adverb phrases) to be able to determine the structure of the clause: subject, verb, object or complement (Harley, 2005). Under the serial autonomous view, a possible misreading of the example above could lead to the following syntactical interpretation:

91) Enraged cow 'with axe' injures farmer.

If the syntax cannot align with the semantics in the production of a meaningful representation, the system would reconfigure and construct a new syntactic representation, which is matched to a different semantic representation. By semantics, this chapter refers to the thematic roles: the arguments a verb gives to the subject, object and complement in the sentence (Harley, 2005).

This model partially correlates with Fodor's (1983) informationally encapsulated language modules in which the syntax is computed in one module, the output of which is matched to the decoded conceptual constituents. The difference is that, on Fodor's (1983) view, the processing is incremental: syllable-by-syllable. In relevance-theoretic terms, these independent syntactic and semantic constructions are united into the logical form of the utterance and delivered to the domain-specific comprehension module.

Ostehout and Nicol's (1999) brain imaging studies, employing event-related potentials (ERPs), also support a serial autonomous model of language

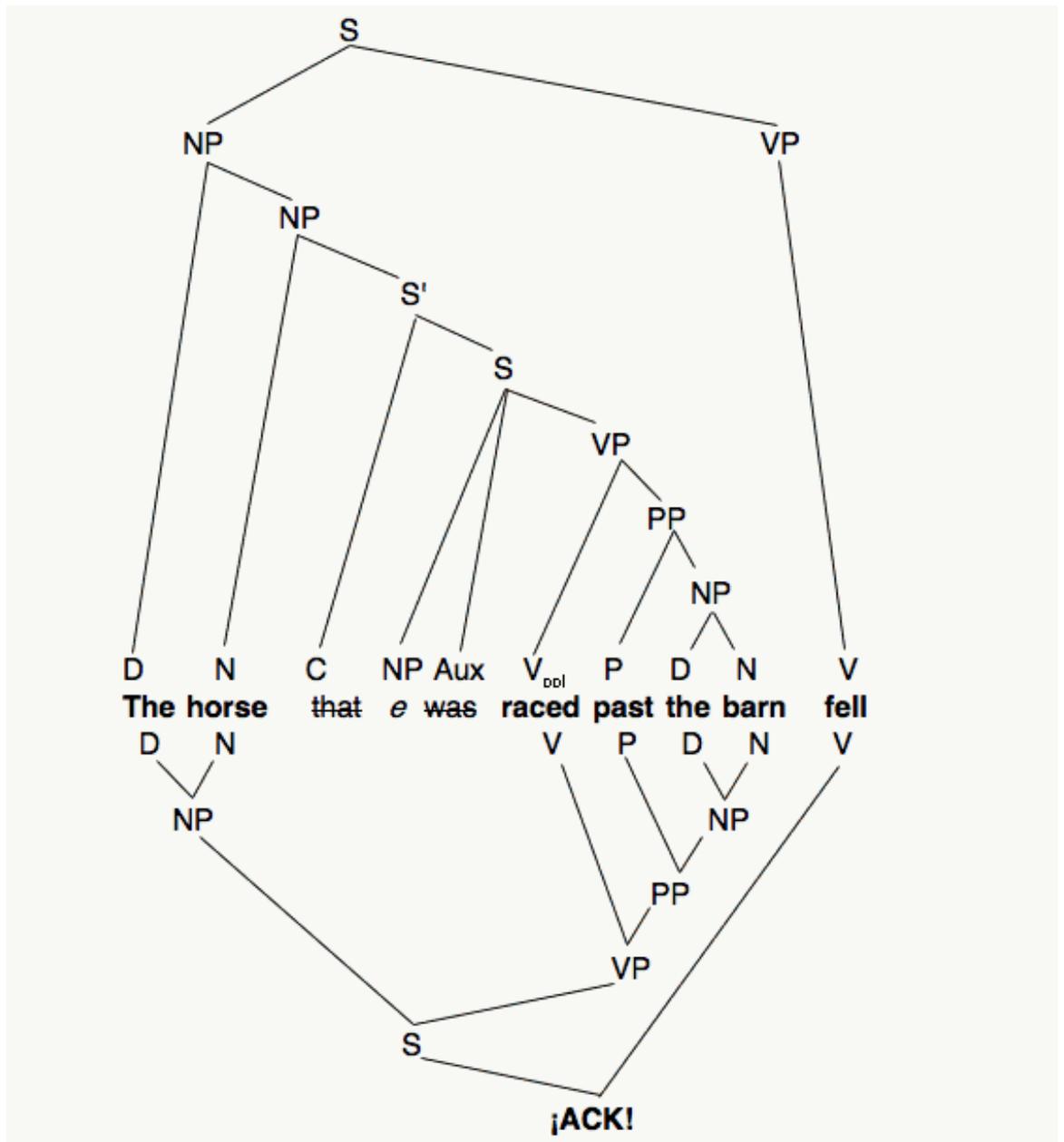
processing. For these theorists, the syntax and semantics are independent processes because syntactically anomalous sentences induce a P600 amplitude of the electrical wave whereas semantic ones correlate with an N400 (Ostehout and Nicol, 1999). However, the argument in this thesis is that domain-specificity for the language module does not necessarily imply that it is blind to the workings of others (see chapter three).

The serial autonomous model explains the existences of garden-path utterances, utterances which are complex to parse and by which you are led, initially at least, to the wrong interpretation. Consider (92):

92) 'The horse raced past the barn fell.' (Harley, 2005, p. 265)

According to Harley (2005), the fact that (92) constitutes a garden-path is explained by the way that speakers are expected to follow the rules of minimal attachment and late closure. Minimal attachment is the fact that hearers/readers follow the simplest syntactical structure when computing a sentence (Harley, 2005). It is based on the idea that there are nodes in a syntactic tree that represent the hierarchical relations between a sentence's constituent parts: the subject (noun phrase), verb (verb phrase), object (noun phrase) and so on. Late closure specifies that the clause being processed should be kept open for as long as possible. If these two rules conflict, minimal attachment is given priority (Harley, 2005). Hence, Harley (2005) suggests that there is a predetermined tendency to develop a simpler sentence construction that constitutes fewer nodes, which means fewer additional constituents in the tree. Therefore, following the rules of minimal attachment in (92), there would be an expectation for the verb <raced> to be the past tense use (with the horse doing the racing), rather than the participle use (someone else doing the racing). This is because the latter would require a new clause, so more nodes in the tree. Figure six shows the erroneous reading at the bottom, and the correct one at the top:

Figure six Garden path utterance: tree diagram



In view of the top part of the diagram, the sentence in (93) shows that the participle use is the correct reading where the italics represents the words which have been ellipped:

93) The horse *that was raced* past the barn (was the one that) fell.

On arriving at the word <fell>, the hearer would realise that the semantics does not hold for the past tense use, and would no doubt re-compute the syntax, and

match it with the new semantics in producing the correct form. Garden path utterances become examples for certain theorists to explain why we choose the wrong path. However, Crain and Steedman (1985) argued that it is not the syntax that leads us up the garden path, but the semantics. For instance, if there is more than one horse, such as in (93) above, it increases the level of difficulty in processing; there may be several horses, but it was the *one* that was raced past the barn that fell. In contrast to the serial autonomous model, Crain and Steedman (1985) claim that representations are built word-by-word, so that each word generates all possible syntactic representations, which is matched to all possible semantics representations.

In the interactive model, by contrast, syntactic, semantic and pragmatic representations are processed in parallel (MacDonald, Pearlmutter, and Seidenberg, 1994). Under the interactive view, Tabor and Tanenhaus (1999) claim that different interpretations compete in the pulling of a concept between two different meanings in an attractor network. For relevance theorists, once a concept is decoded and sent to the deductive device for pragmatic processing, it is informationally encapsulated from the modules which process the syntactical and semantic representations (word to concept). In a parallel processing approach, the domain-specific pragmatics module (using relevance-theoretic terminology) would need access to the syntax and semantics as the concepts are pulled towards these differing meanings.

As Tabor and Tanenhaus' (1999) theory suggests, RACED competes between two different meanings so that both the past tense and the participle are activated simultaneously. Garnsey *et al.* (1997) claim that verbs are biased to a certain thematic role depending on their frequency of use. Considering that subjects are often interpreted as agents of the action, the past tense use of RACED is selected: the horse is doing the action of racing. It explains why the sentence causes a garden path. The actual use is theme role with the verb in the participle form RACED, defining a reduced relative clause (adapted from Trueswell and Tanenhaus, 1994). Arguments of this nature while looking at the semantics do not include the wider context, and how our encyclopaedic knowledge is constructive in accessing the intended speaker meaning.

This thesis presumes that any account of language use, literal or non-literal, requires pragmatic processing in which the decoded logical form is inferentially developing into an explicature and implicature. (94) illustrates how thematic roles alone are insufficient to account for the comprehension of novel metaphors. The example is from Bowie's song 'Rock 'N' Roll Suicide':

94) 'Time takes a cigarette, puts in in your mouth

You pull on your finger, then another finger, then your cigarette

The wall-to-wall is calling, it lingers, then you forget

Oh oh, you're a rock 'n' roll suicide

You're too old to lose it, too young to choose it

And the clocks wait patiently on your song

You walk past a café but you don't eat when you've lived too long

Oh, no, no, no, you're a rock 'n' roll suicide.' (Bowie, 1972)

The concepts WALL-TO-WALL and CLOCKS, being inanimate objects, are instances of noun phrases that when in the subject position are not frequently considered to be the agents of the action. WALL-TO-WALL is normally used as an adjective phrase to describe fitted carpets, so it is not frequently used as a noun phrase, in subject or object position. Therefore, the metaphorical meanings in (94) are not frequently used, and so they seem to behave in a similar way to a garden path sentence. Considering metaphoric uses are ubiquitous, to dismiss them as either an erroneous instance of language use or as secondary to other uses seems inherently wrong. This is because, such a reading suggests that the frequently-used thematic roles are accessed primarily, and if that violates the intended meaning, another is activated. However, this thesis has argued that metaphor is not a deviation from literal language or any other form, but is used extensively

and is naturally occurring. By contrast, TIME has previously been frequently activated as a metaphor in which it can be in the subject position with an agent role. The interactive model seems only to work for conventional or familiar metaphors, not a desirable outcome.

What is largely missing from the interactive model is an account of pragmatics or, more specifically, how the context and our encyclopaedic knowledge plays a role in understanding what a speaker means. It can only be surmised that when these authors talk of ‘world knowledge’ what they mean is semantics: thematic roles. It was a criticism that was levied against Spivey (2007), another embodied theorist, in chapter five.

This thesis claims that the frequency of thematic role use and the accessibility of a word’s meaning no doubt play an important role in accessing the contextual assumptions as to the speaker meaning. However, thematic roles alone are not sufficient in explaining how ad-hoc concepts are inferentially constructed, according to the context, and which go beyond the semantic structure of the verbs.

6.2 Recanati: parallel processing

If the interactive model, endorsed by certain embodied cognition theorists, falls short in some way, what kind of parallel processing model can we adopt? This section addresses Recanati’s (2002) definition of a parallel processing model from a philosophy of language perspective. For him, parallel processing is about the activation of different candidate concepts and the derivation of the explicit and implicit meaning. He draws comparisons between the parallel model and the serial (sequential) model, which is similar to the serial autonomous model, except that the focus is on concept activation, rather than a syntactic level representation.

Initially at least, there are similarities between Recanati’s (2002) notion of activating a candidate sense and the way that relevance theory refers to the way a word activates its encoded conceptual counterpart in cognition. Following relevance theory, this is inferentially developed according to considerations of

relevance to form an ad-hoc concept. However, the key difference is that, on Recanati's (2000) approach, there is a suggestion in which thematic roles are incorporated into the parallel model. The differences between the serial and the parallel model can be seen below:

- a. According to the serial model, the most accessible candidate for semantic value is tried first; if there is a problem some backtracking takes place.
- b. According to the parallel model, all candidates - or at least, all candidates which reach a certain level of accessibility - are tried in parallel; the first candidate whose processing yields satisfactory results in the broader context of discourse is retained, while the others are suppressed. (Recanati, 2002 p. 9)

The serial model follows the underlying tenets as the serial autonomous model: one candidate concept is constructed, and if it violates the sentence meaning, another is reconstructed. The model echoes Grice's (1975) traditional asymmetric notion of a metaphor in which the literal proposition is primarily constructed, violates the Maxim of Quality, and so initiates the reconstruction of a metaphorical proposition. Recanati (2002) claims that the serial model has had particular popularity amongst linguists because it is easy to see how a metaphorical interpretation relies on a literal one.

By contrast, the parallel model predicts that, in metaphorical contexts, both literal and metaphorical meanings are simultaneously processed, but that only the metaphorical one contributes to the propositional speaker meaning. Such evidence correlates with Rubio-Fernández's (2007) experiments in which the literal meaning is retained up to 1000 milliseconds after the onset of the metaphor vehicle. For Recanati (2002), the literal word meaning is accessed prior to the metaphorical one, but that the literal proposition is not computed before the metaphorical one. His claim is that the literally encoded concept is made accessible, which 'automatically (i.e. non-inferentially) spreads to various associatively related representations' which have the potential to become the intended candidate (Recanati, 2002, p. 13). Although the literal and metaphoric candidates are constructed in a serial manner, once activated, they simultaneously compete for selection, in a parallel manner, and the most accessible concept will

contribute to the proposition expressed. His findings lend support to Tabor and Tanenhaus' (1999) claim that all senses are activated and compete for selection.

It is 'accessibility', on Recanati's (2002) approach, that determines how the metaphorical meaning is selected over the literal one in the representation of the propositional speaker meaning. In the interactive model, the thematic structure was responsible for narrowing down the search for accessible meanings, but it also predicted that the literal or familiar metaphorical readings would take precedence over novel metaphoric interpretation. Following Barsalou and Billman (1989) and Sperber & Wilson (1995), Recanati (2002, p. 10) defines accessibility as 'recency of processing, close associative links to accessible representations, and frequency'. In short, he presumes that when and how often a concept is processed alongside the associated information it makes available affects concept selection. It is, therefore, possible to see that frequency does play a role in determining which sense is most accessible, but that it is not the sole factor at play. The key difference to relevance theory is that metaphorical meanings are not inferentially constructed, but are the result of associative links or what Recanati (2002) calls spreading activation.

To explicate the disparity between the serial and parallel model, according to Recanati (2002), an extract from Amy Winehouse's song 'What is it about Men?' is discussed:

95) 'It's bricked up in my head, it's shoved under my bed

And I question myself again: what is it 'bout men?

My destructive side has grown a mile wide

And I question myself again: what is it 'bout men?

What is it 'bout men?' (Winehouse, 2004)

According to Recanati (2002), the serial model would assume that 'my destructive side has grown a mile wide' would, firstly, be developed into the proposition literally expressed, which is an impossibility in this instance. Under Grice (1975, p. 46), if the literal proposition does not conform to the Maxim of Truthfulness, hearers would subsequently infer the metaphorical proposition, as shown below:

96) Amy's destructive side is getting increasingly worse.

To emphasise the difference to Sperber and Wilson (1986/1995, 2012), after the logical form has been constructed, the explicature and the implicature are developed in parallel:

97) a) Explicature: MY DESTRUCTIVE SIDE* has GROWN a MILE WIDE*.

b) Implicature: Amy's destructive side becomes more apparent in relation to men to such an extent that it is detrimental to her wellbeing.

In the above pragmatically developed propositional forms, there is no prior construction of the proposition literally expressed, and this is exactly what their lexical pragmatic account of loose use hopes to avoid (see chapter two).

On the parallel model, by contrast, Recanati (2002) argues that the metaphorical vehicle concept is assigned a literal meaning, and its activation spreads to further candidates, of which there may be several. In the instance of the example in (95), GROWN a MILE WIDE would be interpreted literally, as something that has indeed increased in length to equal a mile long, and that this activated sense would spread to different candidates, associatively connected and not inferentially developed. This is what Recanati (2002) terms a primary pragmatic process in its determination of the explicit level of meaning. It is based on the accessibility of the conceptual candidates, derived from certain scripts and frames from the lexically encoded concept. The benefits are that while literal word meanings are activated, the literal proposition is not, thus ruling out traditional approaches, such as Grice's (1975) in which literality takes precedence.

Carston (2006) challenges Recanati's (2002, 2004) view on two key points. His account claims that only the primary processes, at the explicit level, are 'sub-personal' and so beyond reflective thought whereas the implicit level of meaning is at the 'personal' level, so conscious and reflective since it follows Gricean maxims. For Carston (2006), and in accordance with the relevance-theoretic account, utterance interpretation is a mutual process of explicit and implicit adjustment at the 'sub-personal' level. This is because although it may be accessible to consciousness, it does not rely on our rationality, but on hard-wired mechanisms beyond conscious deliberation.

Moreover, Recanati (2002) applies local, associative, not inferential, processes to the literally encoded concept in determining the explicit meaning, implying that only the implicit meaning is truly inferential. Carston (2006) claims that it suggests that the explicit and implicit level are processed in a sequential manner, similar to the serial model. This is because there are two different processes: 'local, associative, unconscious, in the one case; global, inferential, consciously accessible, person-level, in the other case' (Carston, 2006, p. 8). These differences seem consistent with Dennett's (1969) sub-personal/personal distinction. However, Recanati (2004, p. 74) views his approach as 'a two-step procedure' in which 'the interpreter first determines the utterance's primary meaning, then infers some additional meaning'. His argument is that it is not a

sequential model since the explicit level is logically, but not temporally, prior to the implicit level.

Carston (2006) also asks whether ‘accessibility’ is able to account for these extra candidate meanings that are activated via associative links. For example, Recanati provides an example of metonymic use:

- 98) ‘The ham sandwich has left without paying.’ (Recanati, 2004, p. 31)

The metonymically-used concept, ‘the ham sandwich’, is supposed to activate its different referents. Carston (2006) suggests these potential candidates could consist in: the sandwich, the plate, the orderer or the sandwich maker. Carston (2006) speculates that once the initial noun phrase ‘the ham sandwich’ is processed, the sandwich is the most accessible candidate, yet once the predicate ‘has left without paying’ is computed, the ‘orderer’ is the most likely one. According to Recanati (2004, p. 31), once the predicate has been parsed, ‘it demands a person as argument’ thus making the ‘ham sandwich orderer’ more accessible. It possibly suggests that the development of the explicit representation containing the metaphoric meaning includes an element of the semantic or thematic roles that Trueswell and Tanenhaus (1994) and Garnsey *et al.* (1997) refer to.

The example in (98) highlights how Recanati’s (2004) account is able to incorporate an element of the embodied cognition definition of semantics in terms of determining a verb’s argument structure into the pragmatics, which makes his approach nearer to a parallel processing model. Since Sperber and Wilson (1986/1995) and Carston (2002, 2010b) favour a view of cognition in which the input systems are informationally encapsulated, is it possible to account for a changing verb structure at this stage on the relevance-theoretic model? The initial argument structure of ‘ham sandwich’ as patient (undergoing an action) in the subject position is established, but this is violated by the predicate ‘has left without paying’. It requires the semantics to reconfigure the representation in the logical form so that the subject has an agent role. However, the semantics

module, on the Fodorian (1983) thesis, is encapsulated so it cannot be reconstructed. There is no mention, however, of the embodied cognition definition of semantics in the relevance-theoretic literature, and all such discrepancies in a verb's structure are presumably thought to be resolved within the domain-specific pragmatics module.

On Recanati's (2002, 2004) account, these different candidates (ham sandwich, ham sandwich orderer and so on) are accessed via certain frames or schemas evoked by the situation: in a café, uttered by a waiter and so on. However, as Carston (2006) rightly points out, associated schemas would not work for emergent properties in the vehicle concept. An example is:

- 99) 'Don't let that surgeon operate on you. He's a butcher' (Carston, 2006, p. 13)

Carston (2006, p. 13) claims that the metaphorical vehicle attributes 'lacking in skill, careless, dangerous, likely to cause damage and pain to those he operates on' to SURGEON*. However, BUTCHER is not normally represented with those qualities, but is, instead, associated to someone with the capacity for 'expertly cutting animal carcasses into pieces and causing no damage or pain to anyone' (Carston, 2006, p. 14). If lacking in skill and carelessness are not associated with the schema of BUTCHER, as Recanati (2004) claims, it suggests that an alternative view is required. According to her, what is missing are the following three possibilities: i) a mapping from BUTCHER to SURGEON*, ii) a conceptual blending approach in which aspects of the two domains are blended, or iii) a relevance-theoretic comprehension procedure. Although Carston (2002, 2006, 2010b) is a relevance theorist, she argues that if adopting choices (i) and (ii), it would still require the relevance-theoretic comprehension procedure to determine exactly which elements are transferred or blended.

Carston's (2006) suggestion that it might be possible to combine conceptual mapping and relevance theory is an interesting one. In fact, Wilson (2011a) draws parallels between Cognitive Linguistics and relevance theory, concluding that

they are, perhaps, more points of contact between them than has previously been thought. Lakoff and Johnson (1980, p. 153) argued that ‘metaphor is primarily a matter of thought and action and only derivatively a matter of language’, so that metaphorical language uses merely reflect the elemental conceptual mapping that lies beneath. For Sperber and Wilson (2008), however, metaphor originates in communication, as an example of a loosely used concept to communicate particularly vague thoughts. The similarities between their approaches, for Wilson (2011a), are captured by the way that repeated uses of a metaphor might actually be the cause of the conceptual mappings that exists in Cognitive Linguistics in the production of a familiar metaphor. The claim in this thesis is that such fixed patterns lose their metaphoric feel as the juxtaposition between vehicle and target concept becomes more and more familiar, and so fails to create the same potential for non-propositional representations to be involved in their interpretation.

This section has explored Recanati’s (2002, 2004) claims about ‘accessibility’ of different candidate senses, which seems to include a notion of semantic values in the process of determining the explicit and implicit meaning (pragmatics). If it is the case that semantic values can be included, it would provide further confirmation that the language module is not informationally encapsulated. However, as we have seen, Recanati’s (2002, 2004) approach does not work for emergent properties, which is a key feature of novel metaphoric expressions.

6.3 Empirical evidence for a parallel model

After having addressed arguments from embodied cognition and the philosophy of language, this section examines certain evidence from the psycholinguistic literature as to whether it is possible to validate a parallel processing model.

Kutas and Federmeier (2010) employ ERPs, a method of measuring timed changes in electrical activity in the scalp. The N400 is a negative wave or amplitude at 400 milliseconds, appearing as a result of ‘semantic anomalies, but also present for improbable but sensible endings’ (Kutas and Federmeier, 2010, p. 14.3). Metaphor is an example of a semantic anomaly since it brings together

unfamiliar or rather an unexpected combination of domains. These authors argue that topographic differences in scalp sensitivity, the N400 for meaning anomalies and the P600 for syntactical ones, provide evidence against Fodorian (1983) modularised processors since they are sensitive to linguistic, sensorimotor and conceptual aspects simultaneously. Their claim is that it provides a more accurate picture of the incremental nature of language processing since it captures a second-by-second account.

Kutas and Federmeier (2010) argue that the N400 is unable to distinguish between semantic and pragmatic violations of word use, which implies, for them, that pragmatic and semantic processing occur simultaneously. These parallel-type operations can be situated within a mind/brain that works in a feedforward and feedback manner, and so resonates with Barsalou's (1999, 2009) perceptual symbol system of cognition. Their example is:

100) 'Dutch trains are _____ and very crowded.' (Kutas and Federmeier, 2010, p. 14.12)

The Dutch participants hear two versions of this sentence. The first version has the adjective <sour>, which is a semantic violation since trains cannot be collocated with sour. The second version contains the adjective <white>, a pragmatic violation because the trains in Holland are yellow, knowledge which is said to be freely accessible to the Dutch participants. Their data demonstrated that the N400 amplitude produced the same results for both <sour> and <white>; that is, they both showed up as semantic anomalies. Kutas and Federmeier (2010) suggest that their findings imply that the brain, and so also the mind, does not distinguish between semantic and pragmatic anomalies, and so cognition cannot be modularised, in the way that Fodor (1983) presumes. However, this thesis argues that these results are not definitive since they could be interpreted in three ways: the ERP is unable to measure pragmatic responses; the pragmatics has been conflated into the semantics; or as they presume, the semantics and pragmatic processes are so closely intertwined, that as one influences the other, it is hard to pull them apart when measuring the brain's electrical activity.

Employing Kutas and Federmeier' (2010) data, the following analysis aims to apply a relevance-theoretic approach. The two different possible sentence constructions from (100), would be decoded into the following logical forms:

101) a) DUTCH TRAINS are SOUR and very crowded.

b) DUTCH TRAINS are WHITE and very crowded.

The relevance-theoretic model presumes that speakers are being optimally relevant. Therefore, the hearer would inferentially develop the following explicatures:

102) a) DUTCH TRAINS are SOUR* and very crowded.

b) DUTCH TRAINS are WHITE* and very crowded.

For (102a), the addressee would probably assume the speaker was speaking metaphorically unless the material before or after could explain otherwise. In this case, SOUR* constitutes an ad-hoc concept that has been inferentially developed from the encoded one to a metaphorical use such that there is something about Dutch trains that implies that they are unfit places to be in. It might be a certain smell, disorderliness or even a feeling. If (102a) was part of a government manual about its national train service, the reader would probably assume that it was a mistake, and that the government should employ more proficient writers. The example in (101b) developed into (102b), for a Dutch person, would result in the hearer/reader realising that the speaker is mistaken in some way or that communication has failed. The logical form produces the semantic representation, but the violation would not be apparent until it was processed in the domain-specific pragmatics module. On a relevance-theoretic account, therefore, Kutas and Federmeier's (2010) example has different results.

Although the example in (100) is not conclusive, Kutas and Federmeier (2010) provide more substantive evidence in which they put forward the view that cognition is able to predict forthcoming words because of these synthesised

semantic and pragmatic processes during decoding, normally associated with semantics only:

- 103) ‘On windy days, the boy liked to go outside and fly a/an ...
(where kite is predicted)’ (Kutas & Federmeier, 2010, p. 14.14)

On hearing the word <a>, the supposition is that the participants match it to the contextually predicted target word <kite>; however, when presented with <an>, it provides a mismatch with the predicted target word. Their results demonstrated that for the mismatched determiner <an>, subjects elicited an N400 since it clashes with the predicted noun. Keeping in mind the fact that the subjects do not hear the word <kite>, the interesting aspect to their study is that prior to word recognition, cognition has already ascertained whether the determiner is congruent or non-congruent with the predicted context:

N400 reductions when the words matched as opposed to mismatched the predicted target showed clearly that information about likely upcoming words has shaped the system in advance. (Kutas & Federmeier, 2010, p. 14.14)

The basic premise is that the pragmatic system is aware of, and not blind to, semantic decoding processes, and so is able to predict upcoming content. It recalls Carston’s (1996b) arguments in chapter three in which she remained open as to whether word recognition was an encapsulated process.

If <kite> has not been uttered, it provides evidence which is hard to explain on the relevance-theoretic account. How can the domain-specific comprehension module interpret and so react to KITE when there is no encoded concept KITE in the logical form as yet? Relevance theory’s support for the input systems being informationally encapsulating cannot explain the existence of the N400 for pre-lexical phenomena. Whilst this thesis does not promote ERPs alone as an all-effective mode for comprehending language, it is able to provide a different perspective to language processing.

There is a substantial body of evidence on the subject of metaphors being processed in the right hemisphere (RH) of the brain. Through neuro-imaging

studies, Jung-Beeman (2005) proposes that the left hemisphere (LH) processes literal language while the RH computes non-literal expressions. This is because a literal word activates a semantic field with a 'fine semantic coding', associated with the LH, while a non-literal one stimulates a semantic network with a 'coarser coding', reflective of the RH (Jung-Beeman, 2005, p.513). According to Jung-Beeman (2005), the fine coding connections in the left-hemispheric field are more suited to literal expressions since they consist in well-trodden paths with more easily accessible meanings. The RH, by contrast, has a more 'diffuse' semantic network, and so corresponds with more distantly-related words/concepts. It fits well with the ideas in this thesis, which claims that metaphor is about the juxtaposition of unfamiliar, or rather more distantly-related, domains in cognition.

On the account given here, the domains that Jung-Beeman (2005) refers to seem to be the lexically encoded concepts. To illustrate his point, he provides the example of the more diffuse semantic connections in the RH. For instance, the target word <cut> is weakly related to the following three primes: <foot>, <glass> and <pain> and so registered in the RH. On the other hand, <cut> is more closely related to <scissors>, and so would activate a semantic field in the LH (Jung-Beeman, 2005). Besides semantic fields, he also views the RH as more involved in drawing inferences than the LH, especially for complex tasks or for those in which there is a violation of the global context (Jung-Beemna, 2005). All these seem to depict pragmatic processing, which he attributes to the right anterior temporal lobe, in contexts which could be metaphorical. This is because they are activated for unexpected textual changes and violations of the norm. Jung-Beeman (2005) claims that these processes are 'distinct but highly interactive components of ... processing, supported by ... separable brain areas' and which are fundamental for understanding language. For Jung-Beeman (2005), he concludes that semantics and pragmatics overlap in their processing although his study only shows brain locations without timings, so this thesis argues that it would be impossible to be able to confirm such a hypothesis since it leaves open the option for them to be sequential.

Coulson (2012) questions the validity of neatly differentiating each hemisphere into different forms of language use. The reality, she suggests, is far more

complex than that. Rapp *et al.* (2004) have shown that RH activation seems to be the result of the difficulty of the task such that when literal and non-literal words were equally matched in difficulty, the LH was more activated for metaphoric sentences. If hemispheres are linked to the difficulty involved, surely that would be related to the pragmatic aspects of interpretation, yet the data presents little information about whether it is simultaneously or sequentially developed, leaving the issue somewhat in the dark. However, what seems resoundingly clear from the research is that the mental processing difficulty that arises during metaphoric interpretation is due to the increased degree of mental imagery, feelings and other non-propositional phenomena that are activated during interpretation (Ferstl, Rinck and Cramon, 2005; Coulson, 2012). One supposition is that the semantic distance between the concepts requires this additional search through our resources, whether it is the pragmatics or the simultaneous processing of the semantics and the pragmatics, which provides access to the wide array of non-propositional representations.

It is not possible to state with any conviction that the RH is solely responsible for metaphor, nor that there is truly parallel processing for language interpretation. One possibility is to deny that there is a semantics module at all. Considering the evidence presented that pragmatic processes intervene on word recognition (Kutas and Federmeier, 2010), is it possible that the domain-specific comprehension module has access to the processes that map a sound onto a concept, or the word recognition part? It would answer Carston's (1996b) scepticism about word recognition being modularised, and would resolve the issue of a verb changing its argument structure since it would be the responsibility of the pragmatics. Chapter three discussed Kroliczak *et al.*'s (2006) studies in which vision could activate a path to conceptual thought whilst inhibiting one to motor actions; hence, this chapter suggests that the pragmatics module may have an activated route to word recognition whilst not to the syntactical and phonological development of representations.

Needless to say, the unanimous agreement in the embodied cognition literature is that concepts are activated along with their non-propositional information from

different sensorimotor, affective and physiological regions of cognition (Damasio, *et al.*, 1996; Tranel *et al.*, 1997). As Leonard Cohen writes:

104) ‘You live like a god

somewhere behind the names

I have for you

Your body made of nets

My shadow’s tangled in.’ (Cohen, 1993, p. 121)

In comprehending the metaphorical description of a BODY that is MADE OF NETS, which the narrator’s SHADOW gets TANGLED IN, it creates, for me, a pertinent image and understanding of relationships, and how we let ourselves get entangled with others. The use of the encoded concepts, MADE OF NETS, SHADOW and TANGLED IN are all metaphoric vehicles that would be grounded in the sensorimotor, affective and physiological regions of the mind/brain. The metaphoric construction enables the following: MADE OF NETS to create a mental image, and the feel of its texture; SHADOW to construct a mental image and possibly a shade of the colour black; and TANGLED IN to activate a feeling of being caught and the physiological sensations of being tangled in something. It is these non-propositional representations that unite metaphoric comprehension with our embodied selves, feeling our way through the world.

6.4 The cognitive kick

So, why is it that relevance theory is better suited to explain utterance interpretation as opposed to other linguistic theories? This thesis claims it is the notion of the trade-off of cognitive effects for mental processing effort. This section aims, therefore, to justify this part of their theory. Moreover, in understanding why it is we appreciate these unfamiliar juxtapositions in metaphoric construction, this section intends to extend the relevance-theoretic

ideas about cognitive effects into notions of cognitive pleasure: we get a cognitive kick out of an aesthetic experience.

Carston (2002; 2010b) and Pilkington (2000; 2010) argue that novel metaphors require more processing effort, yet offer more cognitive effects than their conventional metaphorical counterparts. It contrasts with Kutas and Federmeier's (2010) claim in which metaphors may require more effort than literal language, but possibly not more time. It is very plausible that cognitive processing effort may not always be equated with time. However, with certain novel metaphoric examples in which there is a conscious accessing of mental imagery and feelings in understanding the speaker meaning, there is undoubtedly a time factor involved. More time implies more cognitive processing effort, which suggests there is a complexity involved in relating two domains not normally brought together.

Fabb (2004, p. 2) suggests that the very complexity involved in understanding a text provides its aesthetic value: 'I suggest that we experience the inherent complexities and multiplicities of literary form as aesthetic'. He further cites Shklovsky (1917):

The technique of art is to make objects 'unfamiliar', to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged. (Shklovsky, 1917, cited in Fabb, 2004, p. 2)

This thesis proposes that these 'unfamiliar' changes to a text which are hard to process gain aesthetic appeal because they are offset against a familiar pattern. It is the novel in the familiar which defines our aesthetic experience. Interestingly, Fabb (2004) claims that complexity does not necessarily lead to a certain appreciation, as it may cause annoyance. As such, he argues that there needs to be a 'willingness to entertain complexity' (Fabb, 2004, p. 69). The question that remains is how this 'willingness' comes about. I return to this below in view of Giora *et al.*'s (2015) work on what this thesis terms the cognitive kick.

So, how are we to comprehend the trade-off of effects and effort implicit in relevance theory? Gibbs, Kushner and Mills (1991) showed participants comparative statements, half they claimed were generated by a computer while the other half was the work of a twentieth-century poet. They found that subjects took longer to reject a meaningless sentence, such as ‘a scalpel is a horseshoe’ if it was attributed to the poet, suggesting more effort for little effects (Gibbs, Kushner & Mills, 1991, p. 664). Do these findings challenge the notion of relevance? The effort factor is no doubt related to the presumption that a poet is more likely to produce an ostensive stimulus than a computer. It may be possible to say that in such a non-natural situation, relevance was not achieved. However, it does show our willingness to invest more effort into creative devices even if it does not always pay off.

Gibbs and Tendahl (2006) designed experiments to test the relevance-theoretic claim that increased cognitive effects (strengthening, contextual implication and contradicting) warrants extra mental effort during the interpretation of metaphors. The citation below illustrates three examples of the different cognitive effects in a metaphorical context:

a. Strengthening context- Tom said to Peter: ‘Lawyers support malicious people’. ‘They don’t care about the victims’. ‘They just care about the money’. ‘Do you have anything to add, Peter?’ Peter replied: ‘Lawyers are also sharks’.

b. New information context — contextual implication: Tom said to Peter: ‘Lawyers work in a court’. ‘They went to a law school’. ‘They specialize in different fields’. ‘Do you have anything to add, Peter?’ Peter replied: ‘Lawyers are also sharks’.

c. Contradiction context: Tom said to Peter: ‘Lawyers support people in need’. ‘They care about their client’s troubles’. ‘They are not concerned with money’. ‘Do you have anything to add, Peter?’ Peter replied: ‘Lawyers are also sharks’. (Gibbs & Tendahl, 2006, p. 397-398)

The sentences above illustrate an example of a metaphor with a negative connotation, yet the trials in total included an equal mix between positive and negative. The subjects were presented with four statements and had to grade their agreement to them:

a. Peter thinks negatively about lawyers. (b) Peter thinks that Tom thinks negatively about lawyers. (c) Peter is trying to convince Tom of something about lawyers that Tom does not already believe. (d) Peter's remark expresses complex meanings. (Gibbs & Tendahl, 2006, p. 397-398)

Obviously, the participants rated the contextual implications as agreeing less strongly to the experimental subject's beliefs than with strengthenings. Moreover, the participants felt that the experimental subject was trying to convince someone of their beliefs in the contradictory context. The general conclusion, however, by Gibbs and Tendahl (2006), is that metaphors are able to elicit the varying cognitive effects in much the same way as literal language in the way that relevance presumes. Their experiments are the first of their kind in providing experimental evidence in favour of the existence of cognitive effects.

Giora, *et al.* (2004, p. 116) propose an addition to the relevance-theoretic view of cognitive effects called 'optimal innovation'. It is still a cognitive phenomenon, but which relates to pleasure, as opposed to an alteration in beliefs. It, basically, describes how humans respond pleurably to the juxtaposition of the novel within the familiar or the familiar within the novel, which is not necessarily confined to novel metaphor (Giora, *et al.* (2015). They describe it as follows:

The Optimal Innovation Hypothesis- Pleasurability is sensitive to optimal innovation. Optimal innovation- A stimulus would be optimally innovative if it involves

a. a novel—less or nonsalient—response to a given stimulus, which differs... from the salient response(s) associated with this stimulus and

b) at the same time, allows for the automatic recoverability of a salient response related to that stimulus so that both responses make sense. (Giora *et al.*, 2004, p. 116)

They define salience as a word that is accessed due to its frequency, familiarity and prototypicality, which is not too dissimilar to Recanati's (2002, 2004) definition of accessibility. On their account, contextual cues specify that salient meanings are accessed faster than non-salient ones, but that what they call the 'coded meanings' are automatically activated irrespective of the context (Giora, 2015, p. 3). These coded meanings refer to the encoded concept in cognition.

Giora *et al.*'s (2015) proposals here provide a loosened version of Fodor's (1983) modularity thesis in that the lexically encoded concepts and their inferentially developed counterparts are accessed simultaneously. Nonetheless, the most salient metaphorical meaning is activated faster (Giora, *et al.*, 2015). It differs to Recanati (2002) who argues that the literal meaning is always activated prior to the metaphorical one. Optimal innovation is the pleasurable cognitive response as a reaction to the non-salient meaning, metaphorical, pictorial or another device, which is juxtaposed against a salient one. The implication of their findings is that there is a cognitive motivation to pursue aesthetic uses of language, not only on account of the relevance-theoretic cognitive effects, but also due to this pleurability. It relates to Fabb's (2004) suggestion that there needs to be a 'willingness' to invest in this complexity. Giora *et al.*'s (2015) ideas correlate with Fabb (2004, p. 76) since he further describes aestheticism as the 'contradiction' between what we expect to infer from a text and what we do: the salient and the non-salient.

The notion of optimal innovation also resonates with Freud's (1919) description of the uncanny in that the juxtaposition of the unfamiliar in the domain of the familiar explains an aesthetic phenomenon. Notice that, in contrast to Davidson (1978), it is not only about beauty, but that it is also the non-salience which causes us pleasure. In illustration, Giora *et al.* (2015, p. 5) explain that the novelty implied by the street art in the visual image (see figure seven), in Tel Aviv, with the sign 'Know Hope', set amidst the destruction of war, has more resonance than the usually salient 'No hope':

Figure seven: Know Hope



Source: (Giora, *et al.*, 2015)

Their experimental research asked participants to rate the degree to which they liked familiar or novel metaphors and their related literal interpretations. All four types of sentence were rated for equality in terms of their coherence (Giora *et al.*, 2015). These authors found that the familiar metaphors did not vary in terms of salience compared to their literal counterparts since they took the same time to understand whereas the novel metaphors took longer to read, so they deduced that their meanings must be non-salient. Giora *et al.* (2015) concluded that the novel metaphoric examples invoked the highest liking ratings because they involved the most non-salient meaning. It echoes Jung-Beeman's (2005) studies in which metaphors were argued to be more distantly related, and as Rapp *et al.* (2004) found, were more difficult to process. Interestingly, the literal interpretations of the familiar metaphors were considered to be more favourable than the familiar metaphorical meanings since the latter is more salient. In other words, that particular amalgamation of concepts has been so frequently accessed that it is highly familiar, and so causes little pleasure. It aligns with key ideas in this thesis

in which familiar metaphors lose their metaphoricity, and so also their pleasure. It is this combination of the novel in the familiar or the familiar in the novel, which just is more pleasing, and so suggests why hearers are prepared to invest that additional effort. This thesis suggests that the pleasurability that arises in novel metaphors is a result of the extra non-propositional effects made accessible during interpretation.

The sentence in (105) exemplifies what Giora *et al.* (2015) mean by pleasure and non-salient meanings:

- 105) ‘The significance of taking down the statue is simple: Cecil Rhodes is the Hitler of southern Africa. Would anyone countenance a statue of Hitler? The fact that Rhodes is still memorialised with statues, plaques and buildings demonstrates the size and strength of Britain’s imperial blind spot.’ (Rawlinson, 2016)

Looking at what could initially be perceived as a familiar metaphor, the word <blind spot> accesses its conceptual counterpart BLINDSPOT, and is used to indicate someone who is unable to understand a situation, rather being literally and physically unable to see with their eyes. However, the particular collocation with the adjective BRITAIN’S IMPERIAL, suggests it could be viewed as a novel way of understanding a familiar metaphor, especially in view of the fact the article it is taken from explains how Rhodes is a reminder of our imperial and bloody past (Rawlinson, 2016). Hence, the salient lexically encoded BLINDSPOT would be activated and is glossed to mean ‘understand’. On their account, it would be simultaneously processed alongside the non-salient BLINDSPOT. For Giora *et al.* (2015), it is the non-salient metaphorical reading which is activated primarily, contrasting with the relevance-theoretic claim that the non-salient meaning is inferentially derived posterior to the lexically encoded concept. The non-salient use, because it conflicts with the familiar and easily accessible metaphor, initiates an increased sense of pleasure in the recipient, and thus provides extra impetus to search one’s resources in determining the relevance-theoretic contextual implication. In terms of the central theme of this chapter, it

blurs the distinction between semantic and pragmatic, and so may lend support to the theory offered in this thesis in which the pragmatics module may directly access the area for word recognition in which particular speech sounds or visual input is processed. A word may also activate their encoded conceptual counterpart automatically, hence explaining the simultaneous processing of the salient and the non-salient.

In terms of placing the metaphor in the relevance-theoretic comprehension procedure, it may derive the following:

- 106) a) Explicit content: The fact that Rhodes is still memorialised with statues, plaques and buildings demonstrates the size and strength of BRITAIN'S IMPERIAL* BLIND SPOT*
- b) Contextual assumptions: Britain when they were an imperial nation caused a lot of destruction and death (where destruction and death conjure mental images of wars and battlefields, the physiological pain and emotional sadness associated to this); Britain felt at the time they had a right to carry out such actions considering that it was in the name of showing Britain's strength and increasing wealth; strength and wealth were/are more important to Britain than treating people humanly (a felt sense of coldness and lack of empathy, and mental imagery of people dying and injured in the hands of imperialists); Britain is unable to understand the effects of its actions *to such an extent* it causes difficulty in seeing situations with any clarity
- c) Contextual implication: Britain is unable to understand the effect of its past actions (a felt-sense of coldness) to such an extent that it cannot understand the need to remove the reminders: statues, plaques and buildings of its destructive past (mental imagery of buildings and people being destroyed, the emotions of fear and anger).

The key point here is that the contextual assumption 'to such an extent' in (106b) is argued to provide the familiar metaphor with a slightly different meaning when juxtaposed to BRITAIN'S IMPERIAL in such a way that it creates extra cognitive effects, offset by the extra mental effort involved. The use of the salient (familiar) metaphor in a novel context creates an increase of pleasure in the addressee. It may be that the cognitive sense of pleasure may give way to feelings of pleasure and that it works alongside relevance in determining cognitive effects. Hence, our metaphorical expressions give us a cognitive, and possibly a bodily, kick.

6.5 Conclusion

This chapter has explored whether it is possible to account for a truly parallel view of utterance interpretation. To account for the role of non-propositional entities that arise during metaphoric interpretation requires a view of cognition in which there is a two-way interaction between conception and perception. Hence, this view has the repercussion that semantics in the perceptual part of cognition and pragmatics in the conceptual regions (domain-specific comprehension module for relevance theorists) are possibly also processed in parallel. This chapter has found that the evidence for an interactive model of language use could not substantiate its claims about parallel processing. Recanati's (2002, 2004) parallel processing approach was also unable to explain emergent properties. The suggestion has been to question whether there is a semantics module, and that possibly the pragmatics module may be able to gain direct access to the area for word recognition. It would explain certain evidence that suggests that the encoded and metaphorical word meanings are processed simultaneously.

Finally, this chapter aimed to validate the relevance-theoretic notion of a trade-off between cognitive effects and processing effort involved in metaphoric utterance interpretation. Giora *et al.* (2015) extended the notion of cognitive effects to their optimal innovation hypothesis. These authors claimed that the juxtaposition of the novel and the familiar produces a certain cognitive pleasure in the recipient: we get a cognitive kick out of the amalgamation of unfamiliar and familiar domains in novel metaphoric interpretation.

Chapter seven: Conclusion

7.0 The principal claims

This thesis has proposed a new framework which combines elements from relevance theory's model of communication and cognition with ideas from embodied cognition about the role of non-propositional entities in our thought processes. These non-propositional elements include sensorimotor representations, mental imagery and feelings. This thesis has centred its arguments on novel metaphoric utterances based on the assumption that the juxtaposition of familiar and unfamiliar domains enables the potential to activate an increased amount of non-propositional elements during comprehension. Put simply, metaphor has been understood as the mapping from a vehicle concept onto target concept.

This thesis has argued that relevance theory (Sperber and Wilson, 1986/1995; 2012) can effectively account for the conceptual and propositional representations during comprehension, but that they are unable to fully explain our intuitions about the role of non-propositional entities that arise during metaphoric comprehension. Hence, the account offered in this thesis has synthesised aspects of the relevance-theoretic approach with Davidson's (1978) imagistic account of metaphor and embodied cognition's view of an embodied concept and mind/brain to more fully explain how we process metaphors. Embodied cognition theorists are able to succinctly explicate how a concept is extracted from the sensorimotor regions (Barsalou, 1999, 2009; Richter and Zwaan, 2010), give rise to imagery (Ganis, Thompson and Kosslyn, 2004), feelings and certain physiological representations (Damasio, 1994, 2000). However, these authors have not been able to explain the inferential processes that take a hearer/reader from the words to the intended speaker meaning.

By combining these accounts, this thesis has aimed to address certain issues that arise in relevance theory. One such issue is the emergent property issue. For instance, by including the role of non-propositional entities, this thesis claims that it can better explain how it is that we arrive a speaker's intended metaphoric

meaning. As a consequence, this thesis has extended Wilson's (2012) notion of 'comprehension' to include not only propositional forms, but also non-propositional ones. The consequence is that non-propositional entities are able to undergo inferential operations in the same way as a proposition. This is meant to capture the intuition that we do not only intend to communicate conceptual and propositional thoughts, but that we also intend to communicate our feelings and imagery, such that these are also instrumental in fleshing out the speaker's metaphorical meaning. These non-propositional aspects have been argued to contribute to a proposition such that the thought they express is able to be assessed for its truth or falsity. This is significant since metaphoric language uses are about how we feel, conceptualise and image our place in the world.

By incorporating non-propositional entities, this thesis has claimed that the proposition expressed by the utterance is much closer to the thought behind it. This is because we can feel and sense the world in a way that is beyond our lexicalised concepts and thoughts. When we go deeper into our felt-sense of the body, metaphors seem to naturally arise, and it is through this use of language that we are able to communicate these affective meanings. Kinnell (2002, p. 153) remarked that 'if you could keep going deeper and deeper, you'd finally not be a person... you'd be a blade of glass or ultimately a stone. And if a stone could speak, poetry would be its words'. Metaphors are the natural medium for experience that exists beyond words.

While this thesis has been focussed on the role of non-propositional elements during metaphoric language uses, it is possible to broaden these ideas to other areas. Firstly, it is possible that a speaker may make mutually manifest only a feeling, without any such propositional structure. Consider the example of Pinter's (1986) play 'The Birthday party'. It is an absurdist production in which a piano player, Stanley Webber, is visited by two sinister strangers at the boarding house where he lives. Pinter (1986) had no intention to communicate any such conceptual and propositional ideas in the play since it is absurd; the only intention he wants to make mutually manifest is the feeling of disturbance. What it suggests is that the notion of manifestness in relevance theory could be extended to include the idea that non-propositional elements could work in isolation. It is a

way of extending theories about language use to be able to account for an intended meaning in certain artistic creations.

Following on from this, this thesis has argued that aesthetics can be understood as the juxtaposition of unfamiliar with familiar domains. This view is consistent with Freud's (1919) notion of the uncanny, Giora *et al.*'s (2015) optimal innovation thesis for salient and non-salient meanings and Fabb's (2004) idea of a contradiction between what you expect and what you actually infer as a meaning. Giora *et al.* (2015) have suggested that the appreciation involved in amalgamating salience and non-salience extends beyond metaphor and into other different art forms. This is an area that this thesis feels is worthy of further research in its attempt to reconcile research in linguistics with that in other fields.

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