Lexical Pragmatic Adjustment and the Nature of *Ad hoc* Concepts

Nicholas Allott

University of Oslo, Norway

Mark Textor

King's College London, United Kingdom

This is a postprint (author's final draft, after refereeing). The paper was published as:

Allott, N. & Textor, M. (2012). Lexical pragmatic adjustment and ad hoc concepts. *International Review of Pragmatics*, *4*(2), 185–208.

Please send any comments or questions you have to: nicholas.allott@gmail.com

> The questions in the domain of relevance-theoretic lexical pragmatics that strike me as most interesting and most in need of some long hard thought concern the nature of *ad hoc* concepts. (Carston, 2010: 248–249)

Abstract: According to truth-conditional pragmatics, a word may contribute an *ad hoc* concept to the proposition expressed, that is, something that differs from the concept the word encodes (the lexicalized concept). In relevance-theoretic lexical pragmatics, *ad hoc* concepts are treated like a species of concepts proper. Concepts as well as *ad hoc* concepts are taken to be atomic. Lexical pragmatic adjustment is conceived as the formation of an *ad hoc* concept that is narrower or broader in extension (or both) than the lexicalized concept involved. We argue that difference in extension should not be taken as the crucial feature of lexical pragmatics, since *ad hoc* concepts can have the same extension as the lexicalized concept. In contrast, we propose a positive view of *ad hoc* concepts as clusters of information poised to be used in inference. (Surprisingly, *ad hoc* concepts

turn out not to be concepts at all.) The cluster account drops the assumption that *ad hoc* concepts are atomic and can therefore provide a satisfactory explanation of lexical pragmatic adjustment.

1. Truth-Conditional Pragmatics and *Ad hoc* Concepts

Grice proposed that the pragmatic implicatures of an utterance are inferred from the proposition it literally expresses by drawing on pragmatic maxims. For him, the proposition expressed ('what is said', in Grice's terminology) by an utterance is determined by the linguistic meaning of the words uttered, the assignment of referents to context-dependent expressions such as pronouns and the resolution of ambiguities. (See Grice, 1975: 44). More recently several authors have argued that pragmatics does not only start when the proposition expressed is determined. Some aspects of the proposition expressed seem to be inferred on the basis of pragmatic principles.[1] A criterion that has been important in the debate is the effect of embedding under logical operations such as negation. (See Carston, 2002: 193). Consider an example given by Carston (2002: 193):

(1) *A*: Have you showered?

B: No, I haven't. I showered yesterday and one should not shower too often.

The negation in *B*'s reply operates on the proposition that the speaker has showered on the day of utterance. Otherwise we could not see how *B*'s reason (in his second sentence) bears on the truth of his utterance of 'No, I haven't.' Now it is has been controversial whether pragmatics enters the picture in such cases through deriving the value of a hidden variable that is linguistically provided,

[1] Wilson & Sperber, 1981, provides one of the earliest versions of this view. For overviews see Carston 2002: 19–32; Recanati 2004: 25f.

or by 'free' (i.e. purely pragmatic) enrichment. But it is accepted by both sides that the proposition expressed falls within the scope of logical operators like negation, the conditional etc.[2]

Recanati (2004: 21) calls pragmatic inferences that help determine the proposition expressed by an utterance 'primary'. In this paper we will focus on a particular kind of primary pragmatic process, pragmatic lexical adjustment. Consider the following example (See Wilson and Carston, 2007):

(2) Sam is a saint.

If we are talking with (2) about Sam our helpful neighbour, we may express a proposition that might be glossed, although not precisely expressed, as that Sam is a superfriendly, kind and helpful individual. The proposition that one can so express embeds under logical operators like negation:

(2′) *A*: Sam is a saint.

B: No, Sam isn't a saint, he is often rather unfriendly.

This strongly suggests that the English word 'saint' does not contribute its standing linguistic meaning to what is said by the utterance of (2). For the purposes of this paper we take the standing

[2] See Recanati, 1989: 325; Carston, 2002: 191. An early statement of the view is Cohen, 1971.

linguistic meaning of a word to be a concept.[3] Concepts are, roughly speaking, psychological representations of properties (see Sperber & Wilson, 2002: 607 Fn. 9): for example, the (stable, lexicalized) concept SAINT is a mental entity that stands for the property that all and only saints have ('sainthood'). See section 4 for more on concepts as representations of properties.

What, then, does 'saint' contribute to the proposition expressed if not the concept it encodes? Relevance theorists have proposed the view that the word contributes (i) an *ad hoc* concept (ii) that is accessed by a pragmatic process.[4] What are *ad hoc* concepts in contrast to concepts proper? The psychologist Barsalou argued (1987: 1993) on empirical grounds that we classify things with occasion-specific categories, that is, categories made on an occasion and for the needs of that occasion. Depending on the purpose people pursue, different information held in long-term memory about a category is activated in working-memory (Barsalou, 1987: 115). For example, one's conception of a bird depends on whether one is hunting them or keeping them. Barsalou labelled such categories suggestively '*ad hoc* categories'. *Ad hoc* concepts or categories seem ideally suited to be the occasion-specific meaning of uses of words. Relevance theorists take the mode of access to be the basic characteristic of *ad hoc* concepts. (See Carston, 2002: 322–323.) Roughly speaking, *ad hoc* concepts are not accessed simply by retrieving from memory the linguistic meaning of a word, but by reasoning driven by pragmatic principles. A concept that is so accessed can be non-lexicalised, yet stable. For instance, there might be a whole range of colour concepts that distinguish between shades of a colour which a thinker has 'filed' in her long-term memory, but which are not lexicalised. The access can also consist in the creation of a concept on

[3] We confine ourselves to words in lexical categories (e.g. 'cut', 'saint', 'Mary') and do not discuss functional categories (words like 'the', 'is' and 'you'). We adopt the definition given in the text both because it is the view of relevance theory, whose account of *ad hoc* concepts we are critiquing, and because we think it plausible.

[4] See Carston, 1997; Sperber & Wilson, 1998.

the fly for the occasion.[5] In what follows we will focus on the second kind of process that yields genuine *ad hoc* concepts[6].

The proposal that the use of a word contributes an *ad hoc* concept to the proposition expressed has been extremely fruitful beyond relevance theory. The view that the meanings expressed by words can be (and often are) 'modulated' (Recanati) in context is now a mainstay of truth-conditional pragmatics, endorsed not only by relevance theorists, but by other leading figures in pragmatics and philosophy of language, such as Anne Bezuidenhout (2001) and Recanati (2004: 25ff, 45ff; 2010: chapt. 1.6–7.). For example, the 'direct expression' view of metaphor has become popular in recent years, challenging the older Gricean account according to which metaphors involve saying something false in order to convey a related true implicature.[7] Relevance theorists had already pushed this idea further and proposed the 'continuity hypothesis': that loose use, hyperbole and metaphor are all instances of a unified phenomenon, namely (in the latest version[8]) that an *ad hoc* concept becomes a constituent of the proposition expressed by (a speaker in making) an utterance. (See Wilson & Carston, 2007).

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[5] Some of these concepts that are created on the fly may, of course, over repeated use become lexicalised as additional senses of the word used. (And indeed this may well have happened with 'saint' which may now for some speakers of the language be polysemous.) In such cases, the *ad hoc* concept theory is part of an account of the process by which such an additional sense could originally have been created, and thus be available for eventual lexicalisation. See also Barsalou, 2001: 86.

[6] We will refer to stable but non-lexicalised concepts as *pseudo ad hoc* concepts.

[7] See Bezuidenhout, 2001; Sperber & Wilson 2008, Reimer 2009, Carston 2010b.

[8] The original version of the continuity hypothesis predates the postulation of *ad hoc* concepts. See Sperber & Wilson, 1986a.

While we think that both Recanati's view and the relevance-theoretic account of lexical pragmatic adjustment are promising, we think that both accounts are underdeveloped. In Recanati's view there are 'conditions of application' 'packed into' stable concepts, and lexical modulation may widen the application of a predicate, as with *saint*, in example (2), by dropping some of them (2004: 26). Relevance theorists have argued that lexical pragmatic adjustment can produce narrowing as well as broadening of extension, e.g:

> 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, 2010: 242.)[9]

We agree that pragmatic lexical adjustment yields an *ad hoc* concept that may be less or more specific than the encoded concept, but we argue that this is, in general, not a matter of deriving an *ad hoc* concept whose extension is broader/narrower than the linguistically encoded concept. A concept can be more (or less) specific than another although it has the same extension as the former (see sections 3 and 4 below). An account of lexical pragmatic adjustment must have room for such a notion of specificity/generality. Constructively, we will suggest that a cluster theory of *ad hoc* concepts offers this room (see sections 5 and 6).

First, in sections 2 to 4, we argue that the view that *ad hoc* concepts are atomic is not compatible with a highly plausible view of the inferential nature of pragmatic processes.

2. Lexical Pragmatic Adjustment as an Inferential Process

[9] See also Carston, 1997; Carston, 2002: p. 325ff; Wilson & Carston, 2007; Sperber & Wilson, 2008.

Relevance theory argues that lexical pragmatic adjustment is an inferential process. Take for illustration again an utterance of (2) 'Sam is a saint' and suppose it is made in response to my question 'Who can help me carry my bags to the 14th floor?' If the utterance of (2) is to give me a reason from which I can infer that Sam will help me carry my bags to the 14th floor, the utterance must express the proposition that Sam is a SAINT* (See Sperber & Wilson, 1998). The process of utterance interpretation involves mutual adjustment between the components of the interpretation: the proposition expressed, any implicated premises and the implicated conclusion(s). In processing the utterance of (2), for example, I have a defeasible expectation that the speaker will answer my question. This makes it a reasonable hypothesis that s/he is implicating that Sam will help. Therefore it is also reasonable to assume that the proposition expressed involves an *ad hoc* concept that warrants that implicature. If the total hypothesised interpretation satisfies pragmatic principles (is optimally relevant, for relevance theorists), it is accepted as a 'package'. In the interpretation that is ultimately accepted as correct, the proposition expressed together with any implicated premises logically (but non-demonstratively) warrant the implicated conclusion(s), as discussed above for example (2).

We think that this or something along these lines is highly plausible, and also theoretically desirable since it puts a strong constraint on *ad hoc* concepts. In any case it is an integral part of the most fully-developed account of lexical pragmatic modulation (i.e. that given by relevance theory), so in what follows we provisionally assume that it is correct and explore the consequences for the nature of *ad hoc* concepts.

A theory of *ad hoc* concepts needs to explain, then, how an *ad hoc* concept can support different inferences in cognition from the lexicalised concept that it is derived from; later we will see that it also needs to explain how distinct *ad hoc* concepts can support different inferences from each other.

Now, relevance theorists hold that neither lexicalised concepts nor *ad hoc* concepts have definitions, that is, one cannot provide for them a finite list of individually necessary and jointly

sufficient conditions. (See Carston, 2010: 248 who appeals to Fodor, 1998: see 45f.) The inductive evidence for non-decomposability is that successful definitions of lexicalised concepts are the rare exception, not the rule. Crucially, these authors take the same arguments to apply to *ad hoc* concepts. They hold that there are no definitions of the *ad hoc* concepts expressed by a particular use say of 'run', 'cut' or 'man'. One can gloss such concepts 'cut, as in cutting grass in the normal way with a lawnmower', but such glosses do not fully capture the meaning. The combination of these two points gives one a strong reason to hold that both lexicalised and *ad hoc* concepts are atomic. (See Carston, 2010: 250). In the section 3 and 5 we will re-evaluate the reason for the non-complexity of *ad hoc* concepts.

This means that relevance theorists cannot make use of the simple story that decompositionalists can employ to explain inference. In general, logical relations between propositions (/sentences) can be understood syntactically, that is, as relations that hold in virtue of the form of the proposition (/sentence)[10]. If SAINT* were decomposable to A SUPER-FRIENDLY, NICE AND HELPFUL INDIVIDUAL then this decomposition could be substituted into the place of SAINT* and the inference made with the help of further propositions presupposed in the conversation (e.g. that superfriendly etc. individuals help carry bags).

[10] Note that we use the term 'syntactic' here as logicians do, i.e. to describe a certain understanding of logical relations which is in contrast with semantic validity (discussed below). This is not the same as the distinction in linguistics between syntax – i.e. structural aspects of grammar – and semantics – i.e. linguistically encoded meaning. Our thanks to an anonymous referee for drawing to our attention the possibility of confusion here. Note that insofar as the inferential potential of a sentence depends on the meaning of the sentence and the words it contains, both syntactic consequence and semantic validity are within the remit of linguistic semantics. (On syntactic consequence and semantic validity in logic, see Gamut, 1991: 115–6.)

This simple account is not available to those who take the view that *ad hoc* concepts are atomic. We think that there are two ways that an advocate of this view could try to explain their inferential potential in cognition. We will assess both in the next section.

3. Can Lexical Pragmatic Adjustment be based on Associated Information?

The main feature of the first proposal that we will consider is the idea that it is not the *ad hoc* concept, but the information it gives access to that explains the validity of the inference. Consider for illustration (3):

> (3) John is a shark. [Said about my pet shark, John, or said about a lawyer of my acquaintance, John.]

The different inferential potentials of (e.g.) SHARK and SHARK* are due to the use of information associated with them. A concept is something like a mental address at which information is stored. At the mental address corresponding to SHARK there is a lot of information relating to sharks, some of it encyclopaedic in character (e.g. *Sharks swim while they sleep*), and some of it (according to relevance theory) logical information in the form of meaning postulates (e.g. x: *If x is a shark, then x is a fish*.) Such meaning postulates can be used in a syntactic account of the inference from e.g. *John is a shark* to *John is a fish*.

Of course, in the process which derives SHARK* from SHARK, this meaning postulate is dropped (or, one can say, equivalently, not copied over to the *ad hoc* concept). This means that SHARK* does not have the same inferential potential: notably, it does not license inferences such as the one from *John is a shark** to *John is a fish*.

Now we agree that the correct way to explain the inference potential of *ad hoc* concepts is in terms of what information they inherit from that stored under the stable concept. We are also

inclined to agree that the account of inference just outlined goes some way to showing how an atomic conception of stable concepts is compatible with a syntactic inference system. However we do not think that this account can be extended to *ad hoc* concepts, if they are conceived of as atomic.

To be clear about the disagreement, here is what we take to be the relevance theoretic view: *Ad hoc* atomic concepts can, like any other concept, give access to encyclopaedic information. This information, together with background premises, will formally imply the conclusion the audience is supposed to arrive at. Hence, one can hold that *ad hoc* concepts are atomic and that they support formal inferences.[11]

Our response: This view of inference is only plausible if one ignores the deep and interesting differences between concepts proper and genuine *ad hoc* concepts. However, *ad hoc* concepts differ significantly from lexicalised concepts and even pseudo *ad hoc* concepts. Concepts are memory addresses at which encyclopaedic and logical information is stored. Or, in the often used file analogy, they label a file of information pertaining to one thing (individual concepts) or kind of thing (kind or property concepts). The point of an individual concept as well as the concept of a kind is to organise information pertaining to one and the same individual or kind. (See Fodor, 1998: 94f and Sainsbury, 2005: 238.) For concepts the idea of associated information is well motivated.

Compare *ad hoc* concepts. They play an entirely different role in our mental economy. They don't organise (store) information pertaining to the same things in order to make it available in different circumstances. They have a complementary role. If one wants to run with the file analogy, *ad hoc* concepts are mental notes written for a particular occasion. Consider a shopping list written for tonight's dinner party ('Buy brie, a half stilton, Riesling (Knipser)'). It would be wrong to keep the note if the dinner is a one-off occasion. The right thing to do under these circumstances is to use the list for shopping and then throw it away. Of course if you often have

[11] Thanks for drawing to our attention the importance of this point go to … .

the same dishes at your dinner parties, you might keep the list and re-use it. The role of an *ad hoc* concept is not to organise information that pertains to an individual, property or kind, independently of a particular occasion. It has a complementary role: the *ad hoc* concept is only constructed to underwrite a number of inferences that make a particular utterance relevant in a context of utterance. An *ad hoc* concept is a mental note written for a particular occasion: it is not the kind of mental representation that is supposed to survive drastic changes of its content. Hence, the idea that an *ad hoc* concept is an address for a body of associated information is implausible. (We will come back to this point and develop it further in section 5.) The first response does not work, then, because it misconstrues the nature of *ad hoc* concepts.

4. Can Lexical Pragmatic Adjustment be Semantically Explained?

We move on now to the second option that promises to reconcile the view of *ad hoc* concepts as atomic with the view that they can have different inferential potentials in cognition. This option differs from the first one in that it takes the validity of the inferences to be explained semantically and not syntactically.

On the semantic understanding of valid inference, such an inference takes us from a sentence (or proposition) or set of sentences (/propositions) to another sentence (/proposition) such that the latter must be true if the former is/are true. In the cases under consideration, the validity of the inference depends on relations between the extensions of the concepts the propositions contain. In narrowing, the *ad hoc* concept is connected to properties that are only true of some members of the extension of the linguistically encoded concept. Conversely, in broadening the properties are true of a superset of the extension of the linguistically encoded concept. In this theory, this proposition implicated is a semantic consequence of the proposition expressed and the implied premise(s). In other words, the states of the world compatible with the proposition expressed and

implicated premise are a subset of those compatible with the main implicature (assuming, as for all non-demonstrative inferences, that defeating states of the world can safely be ignored).

However, we argue that this semantic account of inference will not serve in general because a) an *ad hoc* concept and the lexicalised concept that it is derived from may be co-extensional, and b) distinct *ad hoc* concepts may be co-extensional. Our argument is based on examples which come in two varieties. In some counter-examples the lexicalised concept C and the *ad hoc* concept C* have the same extension. In other examples different *ad hoc* concepts C* and C** are formed on different occasions that have the same extension. This shows that there are utterances that express different *ad hoc* concepts and support different implicatures although the *ad hoc* concepts are co-extensional. For this reason, a purely extensional account of lexical pragmatic adjustment is ruled out. The same observation shows that a difference in lexicalised concept and pragmatically derived concept cannot determine a difference in extension. The variety of our examples indicates that the exemplified phenomenon is not tied to the properties of a particular part of speech or semantic category: like the literature on lexical pragmatics, we use proper names, natural kind terms and predicate terms.

Clapton

In the literature, narrowing and broadening are often illustrated by examples in which a proper name is used to express a category that the bearer exemplifies in some way: e.g. 'Cambodia is Vietnam's Vietnam', (Glucksberg, Manfredi, & McGlone, 1997: 333) 'Federer is the new Sampras' (Wilson, 2003: 275). Consider an utterance of:

(4) Clapton is God.

While it is possible to imagine this being intended literally, we suppose that it has often been uttered with the intention of conveying, roughly, that Eric Clapton is a very great musician and guitar player: GOD*. Certainly, the title of a recent article 'Clapton is not God' (*Guardian*, Music, 7.12.2007) is meant to express the thought that he is not such a great individual, rather than to deny his literal divinity (this is clear from the contents of the article). Now this article gives evidence for its claim: for example Duane Allman, not Clapton, played the lead guitar on Layla. It may well be that no one is as good a guitar player as the speaker and hearer of (4) understood Clapton to be. That is, GOD* is empty. And, of course it may be that the lexicalised concept, GOD, is also empty. In that case the stable lexicalised concept, C, and the *ad hoc* concept, C*, are both empty and therefore co-extensional.

'Heavy' Gold

Some alchemists believed that King Solomon had succeeded in making gold from base materials. This gold was thought to be 'heavier' (i.e. denser) than run-of-the-mill gold. Now imagine a senior alchemist initiating an apprentice into these mysteries. He says:

> (5) There's gold and there's gold, my boy, and some is truer gold. When King Solomon made gold, what he made was gold indeed.

What could the extension be of the *ad hoc* concept that the alchemist is expressing with the last use of the word 'gold' in (5)? There is only one stable isotope of gold, 197Au; heavier isotopes have very short half-lives. So the extension would have to be either the same as that of the concept lexicalised by the word 'gold', or the empty set. In the first case, alchemists are under a misapprehension about gold, but this does not affect the reference of their uses of 'gold'. In general,

one can hold false beliefs about the referents of the natural kind terms one uses and yet continue to refer to the kind under consideration. The alchemist's GOLD and GOLD* concepts would, counter-intuitively, be identical because they are co-extensive. In the second case the alchemist's GOLD* concept would be identical to all other empty *ad hoc* concepts, an even less attractive view.

No Mary

Consider the following sentence:

(6) Paul is no Mary.

Suppose that (6) is uttered in discussion of the efficiency or otherwise of the new administrator, Paul, in the philosophy department. His predecessor in the job, Mary, was well known for being very organised, highly efficient etc. Intuitively, the speaker is expressing the thought that Paul does not belong in the category of people who are highly organised, efficient etc. in their approach to their administrative duties. But (6) could be uttered in other contexts. For example, the speaker has been asked whether Paul should be put on the department's tennis team, and utters (6) to convey that Paul is by no means a good tennis player such as all present know Mary to be. Now the extensions of the two *ad hoc* concepts conveyed on these two occasions could turn out to be the same. It might be that all and only those who are good to a certain degree at tennis are good to a certain (other) degree at admin. This is no doubt rather implausible, but it might be the case. If it is the case, we still have different *ad hoc* concepts. After all, none of the speakers or hearers involved need have any suspicion that tennis playing correlates with administrative ability. Furthermore, arguing that only one concept is involved here – or in other examples – would undermine the whole approach. All the examples are ones in which intuitively speaking a lexical concept is adjusted to

fit a particular occasion. The concept expressed in the utterance is more or less specific than the lexicalised concept. If this difference does not consist in the introduction of an *ad hoc* concept, the assumption that pragmatic lexical adjustment involves the construction of an occasion-specific *ad hoc* concept is implausible.

We can use the last example to set aside a suggestion made recently that *ad hoc* concepts are, in general, meta-representational, that is that the *ad hoc* concept is a concept like *whatever the speaker means by 'Mary' in this context*. (Carston, 2010: 251. On metarepresentational concepts see Sperber, 1997: 75ff.) While there are plenty of examples of meta-representational concepts, example (6) is not among them. Suppose that it is clear in the context what the speaker intends to express by her use of the word 'Mary'. That is, it is manifest to both speaker and hearer that the speaker is saying something about Paul's administrative skills. The hearer will not be inclined to treat the speaker as the expert on this type of use of the word 'Mary' in the way that we might be inclined to treat a botanist as an expert on the distinctions between trees. Carston might say that the speaker is always a distinctive authority on what she meant, and we accept that this may be true and that there is a plausible story according to which for the *hearer*, novel *ad hoc* concepts are partly metarepresentational. However in example (6) there are still non-metarepresentational genuine *ad hoc* concepts for the speaker at least. They cannot be metarepresentational: Who would the speaker defer to?

Now the reader might worry that these points are only *ad hominem*. They show that extensions are not the right denotations for concepts; properties are better suited. For instance, Fodor (1998: 162) argues that having a concept is to be 'locked' on to a property. The property a concept is locked onto is contributed by the concept to the truth-conditions of thoughts of which it is a component (Fodor, 1998: 107). And while discussion in relevance theory of the denotations of *ad hoc* concepts has always been in terms of sets, relevance theorists take stable concepts to denote properties (see sect. 1). Of course, one strong motivation for seeing concepts as representations of properties rather than purely extensionally is to give an account of empty concepts and distinct but

co-extensive concepts. So it would be natural to apply such an account also to *ad hoc* concepts in response to our examples. Hence, we need to ask whether relevance theorists could defend their position by holding that *ad hoc* concepts denote properties.

Prima facie, the answer is Yes. The set of the Fs and the set of the Gs are the same if, and only if, the things that are F are G and *vice versa*. But the property of F-ness and the property of G-ness can be exemplified by the same things, and yet be distinct. When are F-ness and G-ness the same property? Difficult question, but many philosophers and linguists hold that if of necessity everything that is an F is also a G and vice versa, F-ness is the same property as G-ness. With this in mind, one can argue that in our examples C and C* denote different properties, and that validity of the inference is based on a relation between the properties denoted.

However, consider the following case. A teacher has taught her class concepts of polygons in geometry, illustrating what polygons are with triangles and squares. In line with the common mathematical understanding she defines pentagons as five-sided polygons. We can safely assume that the lexical meaning of 'pentagon' is FIVE-SIDED POLYGON. Now the teacher asks the students to calculate the internal angles of different polygons. One student, Peter, is quick to establish that necessarily, every polygon whose internal angles match up to 540 degrees is a five-sided polygon and *vice versa*. (Assuming straight sided objects and Euclidean geometry.) He learns and 'stores' this as information about pentagons. Later the teacher presents the students with a random polygon and asks them whether it is pentagon. Peter checks the sum of internal angles and answers: 'No, it is not a pentagon, its internal angles don't add up to 540 degrees!' The concept expressed by Peter's use of 'pentagon' is not FIVE-SIDED POLYGON. If this were the concept expressed, one would expect that Peter would have arrived at his answer by counting the sides of the polygon. This concept that determines which inferences Peter is poised to draw from his statement is POLYGON WHOSE INTERNAL ANGLES ADD UP TO 540 DEGREES. But this concept is not the lexicalized concept; it is an *ad hoc* concept. Yet, the *ad hoc* concept expressed by Peter's particular use of 'pentagon' represents the same property as (has the same intension as)

the lexicalized concept. For *necessarily*, every polygon whose internal angles match up to 540 degrees is a five-sided polygon and *vice versa*.

The conclusion that Peter's use of 'pentagon' expresses an *ad hoc* concept is independently plausible. To see this let us go back to the very idea of an *ad hoc* concept in Barsalou's work. Which information held in long-term memory about a category of objects is in working-memory depends on the task people pursue with respect to this category. Imagine that the teacher gives the students the task to sort polygons into pentagons and non-pentagons with respect to the number of sides a pentagon has. Alternatively, consider a practical task whose fulfillment requires polygons with a certain number of sides. In carrying out this task, the students will conceive of pentagons under the concept: FIVE-SIDED POLYGON. However, imagine that the teacher asks the students to sort polygons into pentagons according to the sum of their internal angles. For this task new information that is stored under the concept of a pentagon will be activated; POLYGON WHOSE INTERNAL ANGLES ADD UP TO 540 DEGREES. A 'special purpose' concept is constructed for a particular task. When the student answers the second sorting task by saying: 'These are all pentagons', his use of 'pentagon' expresses an *ad hoc* concept that picks out the same property as the lexicalized concept. The fact that this *ad hoc* concept represents the same property as the lexical concept does nothing to change this.

The examples given demonstrate that lexical pragmatic adjustment can take us from a lexical concept C to a co-extensional and even co-intensional *ad hoc* concept C*. Hence, the lexical pragmatic adjustment cannot be characterized in terms of narrowing/broadening of extension or intension.

We want to conclude this section by considering a pertinent response to this point. The answer we give points us to a constructive treatment of the problem under discussion.

Response: The criticism affects every externalistic view of concepts according to which concepts are individuated by their denotations. There are well-known responses to these problems.

These can be used to defend the proposed account of lexical pragmatic adjustment in terms of narrowing and broadening.[12]

Answer: Any account of concepts faces the question how one can distinguish atomic concepts that have the same extension. Information associated with a simple concept cannot be used to individuate it. For the same concept may be associated with different information at different times. How can one then distinguish co-extensional simple concepts without making the associated information constitutive of them? Let us have a look at a representative answer:

> Empty individual concepts are all alike in being empty, but there is no danger that they all collapse into a single concept, since the identity of an individual concept is determined by the mental history of a subject. All that would be impossible would be the introduction of distinct empty individual concepts in a single mental act. Otherwise, distinctness of act provides distinctness of individual concept. (Sainsbury 2005: 239)

Sainsbury's basic idea is plausible for concepts of kinds as well as of individuals. Concepts are psychological entities with a 'biography'. For example, my file of a substance like water is formed on a particular occasion and maintained from then on. What ultimately distinguishes simple concepts with the same extension is their history.

There are independent problems with this response. (Don't we end up with too many concepts if the mental history of a thinker distinguishes between concepts?) However, the main point for our purposes is that even if the view proposed would work for stable concepts, it has no plausibility for *ad hoc* concepts. The historic facts about a person's *ad hoc* concept don't make it the *ad hoc* concept it is. *Ad hoc* concepts are, in general, not files that persist from one occasion of

[12] Thanks for this response go to … .

utterance to another and organise one's thinking about one and the same kind. *Ad hoc* concepts are supposed to explain why an utterance can express a proposition that has a point in a given context of utterance. More about this soon. But this initial outline should suffice to make it plausible that the appeal to *ad hoc* concepts raises problems that cannot be countered in the same way as problems about co-extensive or empty concepts.

We can now sum up this and the previous section. We have looked at two ways of reconciling the view that *ad hoc* concepts are atomic with the view that lexical pragmatic adjustment is an inferential process, and shown that neither works. That is, neither supposing that atomic *ad hoc* concepts give access to information that drives syntactic inference, nor that inference over *ad hoc* concepts is semantically driven is tenable. Thus we have shown that if one accepts that lexical pragmatic adjustment is an inferential process, one should give up the claim that *ad hoc* concepts are atomic. But then what kind of thing are they?

5. A Cluster View of *Ad hoc* Concepts

In this section we want to propose a positive theory of *ad hoc* concepts that allows them to be complex. A useful starting point is a comparison between concepts and *ad hoc* concepts.

We have seen in section 3 that concepts are supposed to be memory addresses that give access to a body of encyclopaedic and/or logical information pertaining to an individual or kind. Let's tease out this idea further. A concept can only organise information in this way if it can survive changes of encyclopaedic and/or logical information. Consider a proper concept like CAT. If it turned out that the things in the intuitive extension of CAT were robots (remotely controlled from Mars), we would not say that the extension of CAT is empty (Putnam, 1975: 177). Rather we would revise some of the information stored under the concept. The same goes for other discoveries about things in the intuitive extension of CAT. It seems that, in principle, no information stored

under CAT is essential to its identity. So what Sainsbury says for individual concepts also goes, in general, for concepts of kinds:

> Nothing in the nature of an individual concept requires there to be information which is essential to its identity. […] in updating our beliefs there is no limit, or almost no limit, to the extent to which we may come to regard information we once believed to hold of an object to be misinformation concerning that very object. (Sainsbury, 2005: 224)

Concepts cannot be individuated by the information they give access to because they play a particular role in our mental economy. Namely, as discussed above, they keep track of information about one kind/individual over time and over changes in that information. The argument is that one cannot hold both i) that concepts are individuated by the information they contain; and ii) that a concept may persist, *as the same concept,* when such information is revised. Further, the second criterion is non-negotiable given Putnam's thought experiment about cats turning out to be robots, so the first criterion must be given up. In contrast, *ad hoc* concepts *can* be individuated by the information about the things they purport to represent on an occasion. *Because they are occasion-specific they need not be able to survive changes of encyclopaedic and/or logical information.*

At this point it is helpful to make clear that the distinctive characteristic of *ad hoc* concepts is not mere instability. For there are other mental representations that have such an ephemeral character. (See Recanati 1994: 217). For example, my use of a demonstrative is based on the creation of a temporary file for an object and can lead to the creation of such a file in my audience. The file is temporary (ephemeral) because it consists in or is based on the ability to track an object in perception. This ability is easily lost: if the object is too far away etc. I can no longer track it. The temporary character of an *ad hoc* concept has a different source. In Barsalou's words we 'derive categories to achieve goals'. (See his 1991). *Ad hoc* concepts are goal-derived categories;

the temporary files that underpin our use of indexicals and demonstratives aren't. Let us go back to our 'saint' example. The lexicalised concept SAINT gives access to a number of saintly properties. Only some of them are important to see how an utterance of 'Sam is a saint' can communicate a proposition, knowledge of which will help to decide the issue under consideration. (Who shall I ask for help?) The pragmatically derived *ad hoc* concept SAINT* incorporates only those saintly properties that bear on this issue. Whether this concept's extension is narrower or broader or (as relevance theorists sometimes say) both narrower and broader, is not theoretically important. For instance, the *ad hoc* concept may incorporate only some properties filed under the lexicalized concept and yet have the same extension. If an utterance of 'saint' is made in the course of reasoning about a different issue, a different *ad hoc* concept is contributed to the proposition expressed.

These considerations help us to understand *ad hoc* concepts better.

First, what kind of psychological 'entity' are *ad hoc* concepts? *Ad hoc* 'concepts' are not concepts in the sense we have been using so far. They are *not* memory addresses that give access to encyclopaedic, logical and stereotypical information that is assumed to pertain to a kind (see Carston, 2010: 251). The term '*ad hoc* concept C*' labels information which is stored under the concept C and which is in a particular functional state. Roughly speaking, it is the state in which the information is 'activated'.

However, this characterization is only a first stab. For it raises the question, how is the *ad hoc* concept distinguished from an occasion-specific use of the lexical concept C that does not involve lexical pragmatic adjustment?[13] For example, if I say that it's raining, presumably only a subset of the information stored under the concept RAIN is in the relevant functional state, yet this

[13] Thanks to a referee for pressing this question.

fact would not necessarily make my use of 'rain' express an *ad hoc* concept in the sense discussed in this paper.

The functional state of the information of a concept can, then, not simply be described as a state of *accessibility* or *activation*. It seems to be a fact about the mind/brain that at all times different things in memory are activated to different degrees, and some of this activation is due to brute associations: e.g. hearing the word 'salt' makes the concept PEPPER more accessible than it would otherwise be *ceteris paribus*.[14] But although 'salt' activates PEPPER, PEPPER will not typically be part of the content of an *ad hoc* concept SALT*. Why? Consider again an example. When two geologists are searching for salt, they will represent it differently from you when you ask the waiter for salt, *even though it is likely that everyone in our culture has very similar associations when he hears the word 'salt'*. What matters for *ad hoc* concept formation is that the information is poised to be used to accomplish a particular goal on a particular occasion. The representation of the goal figures crucially in the explanation of why the information is held in working-memory. The geologists represent salt, roughly, as a typically colourless mineral with impurities that can be found in beds or domes *because their goal is to find salt that can be mined*. Mere activation via associative link is therefore insufficient for information to be part of an *ad hoc* concept: *ad hoc* concepts are goal directed categories and this is reflected in their activation.

Secondly, how are *ad hoc* concepts individuated? Everything so far said supports the idea that *ad hoc* concepts are individuated in terms of the information they contain. *Ad hoc* concepts consist of activated information that is supposed to pertain to a category or property. Hence, C* and C** are the same *ad hoc* concept, if, and only if, they consist of the same activated information about a kind or property (i.e. the same information is in working memory/activated). The information can be of various kinds: perceptual, logical etc. One might want to tinker with this

[14] On 'spreading activation' models of memory see Collins & Loftus, 1975; Anderson, 1983. The vast literature on lexical priming starts with Meyer & Schvaneveldt, 1971.

proposal in various ways. For example, the notion of 'activation' or 'in working memory' may give rise to problems. But the basic idea seems to be on the right track and helps us to understand what is distinctive about *ad hoc concepts.*

If the last two points are correct, the standard arguments against a non-definitional view of concepts have no basis for *ad hoc* concepts. If an *ad hoc* concept consists in information that is activated (/in working memory), the concept changes if the activated information changes. Indeed this seems independently plausible. To see this consider example (2) again. Assume that we use the sentence (2) to say that Sam (our neighbour) is a saint* and that the *ad hoc* concept SAINT* can correctly be glossed as superfriendly, helpful person. Now can you find out that Sam is not superfriendly, yet rationally maintain that he is a saint* and therefore arrive at the conclusion that SAINT* does not include SUPERFRIENDLY? No, that would be bizarre. If one were to insist and say 'Sam is not superfriendly, yet he is a saint', the utterance of the word 'saint' would express a different *ad hoc* concept. This example contrasts with Putnam's cat example and illustrates that all the information relevant for the inferences we want to draw on an occasion of use of 'saint' is essential to the identity of the *ad hoc* concept expressed. These inferences determine which information is and which is not essential to its identity.

Vicente & Martinez-Manrique have a similar point in mind when they write:

> [T]he problems of ignorance and error, which haunt decompositionalist accounts of concepts when applied to natural kinds, seem misplaced when the topic is *ad hoc* concepts. Could we be wrong about the extension of an *ad hoc* category, construed on-line for the purposes of understanding? We cannot see how. (Vicente & Martínez-Manrique, 2010: 50)

However, one *can* be wrong about the extension of an *ad hoc* concept. Imagine that you correctly interpret a use of 'saint' and construct the *ad hoc* concept SAINT*, glossed as before. If Fred and

Ted pretend to be superfriendly etc and you fall for it, then you will be wrong about the extension of SAINT*. (See also section 3 for further examples.) The theoretically important difference between *ad hoc* concepts and concepts proper concerns their identity- and individuation conditions, not our epistemic access to the extensions of the former.

Are *ad hoc* concepts then definable in the sense of providing a finite list of individually necessary and jointly sufficient conditions? Not in general. When we gloss 'CUT*' as the concept 'cut, as in cutting grass in the normal way with a lawnmower', we tease out some of some of the constituents of the concept CUT* which enable our audience to grasp the relevant implications of what we are saying. But we can't simply define *ad hoc* concepts or, alternatively, give exhaustive paraphrases of the corresponding words. How can this be, given that on our view *ad hoc* concepts have conceptual constituents?

Because what is a relevant implication of what one is saying by 'Sam is a saint' is, in general, not a clear-cut matter. There are degrees of relevance and one should expect borderline cases of relevance. Up to now, we have discussed utterances in which there is one obvious implicated conclusion. But, relevance theorists have argued – elaborating on Grice's point (1975: 58) about the indeterminacy of implicatures – that there are also cases in which the speaker intends to make available an open-ended set of implicatures, no one of which has to be attributed to the speaker in order for the interpretation to be relevant. Consider an utterance of 'I'm tired' made by Mary discourse-initially while Peter and Mary are visiting a museum. (Sperber & Wilson, 1998: 195). Peter might infer that Mary would like to go home soon, or that Mary's enjoyment of this visit is diminishing, or … . These are weak implicatures. (See Sperber & Wilson, 1986b: chapt. 4).

As we have explained, according to the relevance theoretic account, *ad hoc* concepts and implicatures are mutually adjusted so that there is a relation of inferential support between the proposition expressed and implicated conclusion(s). If we accept this, and the existence of utterances with weak implicatures, as we are inclined to do, it follows that there will be indeterminacy in *ad hoc* concepts. (See Carston, 1997 and Sperber & Wilson, 1998.) What we

mean by this is that a property can be to a certain degree a constituent of an *ad hoc* concept and one should expect borderline-cases here. In this way the implicatures conveyed by an utterance expressing an *ad hoc* concept will be graded or even indeterminate. Like relevance theorists, we see this as a continuum. At one end of the continuum there are utterances with one single intended implicature and a correspondingly crisply defined *ad hoc* concept. At the other end, there are utterances which express a proposition containing an *ad hoc* concept of which some concepts are determinately constituents, while for others it is not determinate whether they are or not.

Ad hoc concepts have constituents, but because of the graded structure and indeterminacy of constituency they do not lend themselves to decomposition in the sense under discussion. We can only specify their determinate constituents; when we do this, we provide a gloss of the *ad hoc* concept. The audience has discretion over the indeterminate ones.

The idea that concept constituency is no clear cut matter is in line with the observation that the part-of relation to physical objects is indeterminate. Take Tibbles the cat. (See Geach 1980: 214f.) Some things are clearly part of Tibbles, for instance, his tail. Some things are clearly not part of Tibbles: the Eiffel tower isn't. But what of the whisker of Tibbles which has come loose and is just about to drop off? Is it a part of Tibbles or not? Or take Kilimanjaro. (See McGee, 1997.) Is this stone at the bottom of the slope of Kilimanjaro part of it or not? There is no answer to this question.

Why not? Either the part-of relation is indeterminate or it is indeterminate to which complex object 'Tibbles' ('Kilimanjaro') refers. For our purposes it is not important to decide between these two alternatives. For both explain equally well the non-definability of *ad hoc* concepts. If it is indeterminate which *ad hoc* concept is expressed by the use of word, we cannot define it in terms of necessary and sufficient conditions. For such a definition will make it determinate which concept is expressed. Similarly, if the part-hood relation is indeterminate, we cannot specify the parts of the concept in terms of necessary and sufficient conditions.

The right model for an *ad hoc* concept seems to be a cluster of information none of which is inessential, but all of which is occasion-specific and relevant for inference. Such a cluster, like a cluster of data points on a graph, has some clear members and some outliers and there may be no sharp, non-arbitrary cut-off between these groups. It is helpful to compare Vicente's (2010) cluster theory of *lexicalized* concepts to the cluster theory of *ad hoc* concepts proposed here. Vicente's use of 'cluster' is intended to express the fact that one word can be used to express several different related meanings and his claim that none of these meanings is the basic or privileged meaning of the word. Unlike us, he thinks that occasion-specific meanings are definable: e.g. "as a matter of metaphysical fact, we can say that there is such a characterisation, since ANGEL* is made up of encoded lexicalised concepts" (Vincente, 2010: 97). But this neglects precisely the possibility that we try to point out with our cluster theory, that the constituency of an *ad hoc* concept may be indeterminate.

Recall that while we have approached the cluster theory through a criticism of relevance theory's take on lexical pragmatics, it is not intended merely as a response to the views of Sperber and Wilson and Carston. Rather, it is intended as an account of what lexical 'modulation' (Recanati's term) really amounts to, and thus as a contribution to truth-conditional pragmatics more generally. The cluster theory goes beyond Recanti's intuitive characterisation of such modulation as the 'unpacking' of information, in proposing that *ad hoc* concepts are nothing more than the clusters of information thus unpacked. This distinguishes them from concepts proper.

6. Advantages of the Cluster View of *Ad hoc* Concepts

Unlike the atomic conception of *ad hoc* concepts, the cluster view has a natural explanation for the role that they play in inferences. As we saw in section 3, the atomic conception rules out a syntactic explanation of the validity of the inferences involved in lexical pragmatic adjustment, while in section 4 we saw that a semantic explanation cannot be general because there are co-extensional cases.

Now in cognitive science the interactions between mental states are commonly supposed to depend only on their form (Fodor, 1980). This is the Computational Theory of Mind (CTM), which:

> views thought as computation: the use of algorithmic rules to systematically map inputs, i.e., information instantiated in neurochemical patterns, onto outputs, i.e. different patterns of information that have been systematically transformed. What makes the patterns in question information is that they 'stand for' something: that they, in turn, can be mapped onto something in the world or mind. (Barrett, 2005: 260).

The great attraction of the theory is that it provides a purely mechanical account of mental inference:

> we can now (maybe) explain how thinking could be both rational and mechanical. Thinking can be rational because syntactically specified operations can be truth preserving insofar as they reconstruct relations of logical form; thinking can be mechanical because Turing machines are machines. (Fodor, 2000: 19)

This feature accounts for the fact that CTM has become the central assumption in cognitive science.

On the cluster-model of *ad hoc* concepts such (syntactic) explanations are readily available. If HELPFUL is a (determinate) constituent of SAINT* then SAM IS HELPFUL is an occasion-specific analytic consequence of SAM IS A SAINT* in this sense. But please note that it is not an analytic consequence of SAM IS A SAINT.

The cluster view of *ad hoc* concepts makes room for the examples we discussed in section 4. An *ad hoc* concept can be more (less) specific than the lexical concept in that the identity of the *ad hoc* concept depends on information that goes beyond or is only a part of the information that can be assessed via the lexical concept. The lexical concept and an *ad hoc* concept can have the

same extension, yet the *ad hoc* concept can be an adjustment of the lexical concept. The cases and the description of the role of *ad hoc* concepts in our mental economy are mutually illuminating and supporting: if *ad hoc* concepts play the role of 'mental notes' one should expect cases of adjustment without narrowing/broadening and, in turn, such cases are evidence for the proposed account of *ad hoc* concepts.

One might worry that if *ad hoc* concepts are clusters they cannot play the roles that they are required to play in our mental lives. There are at least two worries under this general head: one about productivity, systematicity and compositionality, and a second that we are committed to two radically different kinds of things as constituents of thoughts.

It follows from what we said about *ad hoc* concepts that they are not productive and systematic in the sense discussed by Fodor (1998: 25–26). Is this a problem? We don't think so. For *ad hoc* concepts seem indeed to lack these properties. For example, the English word 'green' can be used to express many occasion-specific meanings that are so loosely connected that grasping one of them does not imply the ability to grasp the others. (See Travis 1994: 168.)

But who would have expected things to be otherwise? Understanding an occasion-specific meaning is not only a matter of taking word meanings from the lexicon and combining them according to their positions in a sentence. To espouse truth conditional pragmatics is to be committed on this point. It does not, however, follow that *ad hoc* concepts do not compose. According to Fodor (1998: 25) mental representations are compositional if, and only if, they "inherit their contents from the contents of their constituents". A tall SAINT* is a SAINT* who is tall.

The second worry is that our account might seem to commit us to the view that thoughts (in the psychological sense) are capable of having as constituents both concepts proper and *ad hoc* concepts, and that this is mysterious given that on our account *ad hoc* concepts are a quite different type of thing from genuine concepts. In fact we are agnostic about whether concepts and *ad hoc*

concepts can both feature in thoughts, because we think it is plausible that only *ad hoc* concepts do. This view has already been explored by Bilgrami (1992: 137–8) and, separately, Prinz (2002: 149). To take a leaf from Bilgrami's book, our propositional attitudes explain why we act in a particular way on a particular occasion. In order to yield such explanations, they must contain among their constituents *ad hoc* concepts that support occasion-specific inferences. We have to leave for another occasion the task of developing this suggestion into a satisfactory account. This paper was mainly intended to motivate the task at hand.

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