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From Linguistic Contextualism to Situated Cognition: the Case of *Ad Hoc* Concepts

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Our utterances are typically if not always "situated," in the sense that they are true or false relative to unarticulated parameters of the extra-linguistic context. The problem is to explain how these parameters are determined, given that nothing in the uttered sentences indicates them. It is tempting to claim that they must be determined at the level of thought or intention. However, as many philosophers have observed, thoughts themselves are no less situated than utterances. Unarticulated parameters need not be mentally represented. In this paper, I try to make precise the notion of representation at stake here. In one sense of 'representation', something is represented if it is inferentially relevant. In another, less demanding sense, something is represented if it is relevant to the construction of a context-sensitive, ad hoc *concept.* Ad hoc *concepts act as "proxies" for cognitively more demanding representations. They "imitate" the latter's epistemic and pragmatic roles while being inferentially less sophisticated. Thus, there are two senses in which a thought can be said to be situated: (1) its truth-value is relative to a non-represented contextual parameter, (2) its truth-value is not itself relative, but it involves a context-sensitive,* ad hoc *concept.*

Keywords: Contextualism; Situated Cognition; Relativism; Ad Hoc *Concepts; Unarticulated Constituents*

1. Introduction

In a posthumous essay composed in 1897, Gottlob Frege observed that "if someone says 'It's raining' the time and place of utterance has to be supplied" (1979, p. 135). He pointed out that nothing in the sentence indicates who made the utterance, and where and when. Surely the phenomenon is quite general. Most if not all of our utterances are context-dependent or "situated," in the sense that they are true or false

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relative to contextual parameters that are not indicated in the uttered sentences. Frege himself claimed that these parameters must somehow be incorporated into the *thoughts* expressed by the utterances. More recently, John Perry and others have suggested, *pace* Frege, that thoughts themselves are as context-dependent as utterances. My goal in this paper is to use insights from philosophy of language, especially pragmatics, to evaluate Perry's and other forms of contextualism and eventually give a different account of the sense in which our thoughts are situated.

I shall contrast two varieties of contextualism. ''Linguistic contextualism'' is specifically about public-language representations, and the way their semantic evaluation draws on the extra-linguistic context of utterance. ''Cognitive contextualism'' is the situated cognition claim that conceptual thoughts and other mental representations (whether or not they are expressed in symbols) depend heavily and systematically on the subject's environment. As we shall see, no easy path leads from the former to the latter, since there are quite different versions of both linguistic and cognitive contextualism.

Eventually, a moderate form of cognitive contextualism will be put forward which involves the notion of an ''*ad hoc* concept,'' borrowed from cognitive psychology and relevance theory. *Ad hoc* concepts are mental representations whose instantiation is sensitive to the context of the relevant cognitive task. I shall claim that these concepts ''imitate'' the epistemic and pragmatic behaviour that more sophisticated concepts would exhibit if they were used in the same context. In other words, they act as ''proxies'' for cognitively more demanding conceptual representations.

I shall then argue that *ad hoc* concepts (or at least some of them) are best analysed using the notion of a ''cognitively unarticulated constituent.'' In John Perry's seminal work, the proposition expressed by an utterance can have constituents that are unarticulated in the sense that there are no morphemes that designate them. Independently of whether there are such constituents at the level of language, I shall introduce an analogous notion at the level of thought. Roughly, cognitively unarticulated constituents, in contrast to cognitively articulated constituents, are not associated with inferential roles; they are so to speak inferentially invisible. Finally, I shall suggest that the distinction between cognitively unarticulated and cognitively articulated constituents corresponds to two ways (a minimal and a more substantial one) of representing the world in thought.

2. Moderate Linguistic Contextualism

Even in the most literal cases of communication, it seems that we can use a sentence to convey a thought that intuitively goes beyond what the sentence alone expresses as a matter of linguistic convention. Here are some well-known examples from the literature, where square brackets indicate the part of the thought that is not linguistically expressed:

1. 'It's raining [here/in Paris]'.
2. 'Thank goodness it's over [now]' (Prior, 1976).

3. 'The book is to the left [from my perspective]'.
4. 'The local bar [relative to where we are] is open'.
5. 'Everybody [in the classroom] should be attentive'.
6. 'You're not going to die [from that cut]'.
7. 'Here is John's book [the book he wrote/read/owns, etc.]'.
8. 'It's 3 o'clock [relative to a particular time-zone]'.
9. 'These events are simultaneous [relative to a particular inertial frame]'.

The position that I shall call "moderate linguistic contextualism" (for reasons that will emerge shortly) is meant to be an explanation of this apparently widespread phenomenon. According to moderate linguistic contextualism, the proposition literally expressed by an utterance (in the Russellian sense of 'proposition') can (and perhaps must) have constituents that are not represented formally, either syntactically or sub-syntactically. These constituents are said to be *unarticulated* (Corazza, 2004; Perry, 1993; Recanati, 2002, 2004), in contrast to those that are formally represented, and said to be *articulated*. In the foregoing examples, the square brackets indicate unarticulated constituents of the propositional contents of the relevant utterances.

Critics of moderate linguistic contextualism do not believe in unarticulated constituents. For instance, Jason Stanley claims that "there are no convincing examples of what John Perry called 'unarticulated constituents'" (2000, p. 391; see also his 2002). On Stanley's view, all propositional constituents turn out to be articulated at the level of logical form, whether they are actually pronounced or not. More generally, critics of moderate linguistic contextualism subscribe to the "principle of full articulation," according to which the semantic structure of an utterance is isomorphic with the syntactic structure of the sentence uttered.

There are different ways of implementing the principle of full articulation. Stanley himself defends a position that has come to be known as "indexicalism," according to which what seem to be unarticulated constituents are in fact designated by variables at the level of logical form which take their values in the context of the utterance. For instance, an utterance of 'It's raining' really involves a two-place predicate 'RAIN(t, l)', where t and l are variables respectively for a time and a location. Alternatively, Cappelen and Lepore (2005) have recently developed what they call "semantic minimalism." Instead of postulating hidden variables at the level of logical form, these authors suggest that we take the truth-conditions of the problematic utterances at face value. For instance, an utterance of 'It's raining' is true if and only if it is raining. The metaphysical fact that rain is a phenomenon that concerns a (vaguely) bounded region in space should not affect our semantic analysis.[1]

I cannot go into the details and subtleties of the recent debate between friends and foes of moderate linguistic contextualism.[2] The question I would like to raise concerns how relevant the debate is to the issue of cognitive contextualism. And the *prima facie* disappointing answer is: "not much." Moderate linguistic contextualism is compatible with the most extreme scepticism about there being interesting cases

of context-dependence at the level of thought. Thus, one might argue that even if there are unarticulated constituents at the level of language, they must be mentally represented by the speaker (as well as by the hearer if she wants to understand the thought expressed by the utterance). For instance, I can use the sentence 'It's raining' to mean that it is raining at a particular place (typically where I am), only because this is the place I have in mind when I talk to you. On this view, all propositional constituents are ''articulated'' or made explicit at the level of thought.

Jerry Fodor seems to defend such a view (see, e.g., Fodor, 2001). Producing and understanding an utterance are a matter of translating formulas of a language of thought (mentalese) into public-language expressions, and conversely. Now the thought expressed by an utterance can be at least partly constituted by mentalese expressions that are not the translations of any public language expressions actually used in the relevant context. These would correspond to ''unarticulated constituents,'' even though the thought itself is of course completely explicit. The phenomenon of ''unarticulated constituents'' would thus be strictly linguistic, and irrelevant to the issue of cognitive contextualism.

I hope it is now clear why I call the form of linguistic contextualism under discussion in this section ''moderate.'' This is because it does not have clear implications for the assessment of cognitive contextualism. Moderate linguistic contextualism is relatively neutral as to whether there are interesting cases of context-dependence at the level of non-linguistic mental representations. Unarticulated constituents are said to be provided by the ''extra-linguistic'' context, but the notion of extra-linguistic context is underspecified.

3. Semantic Relativism

There is in recent philosophy of language a much more radical version of linguistic contextualism. Up to this point, the issue has been whether the truth-value of a complete, non-ambiguous, non-elliptical and non-indexical *sentence* is relative to anything other than a possible world – such as a particular place in the case of 'It's raining'. It was at least implicitly agreed on both sides that the truth-value of an *utterance* is absolute (in the sense that what is uttered is not true or false relative to anything but a possible world). Of course, this is consonant with a traditional Fregean view, according to which the truth of an utterance corresponds to the truth of a *thought* expressed by the utterance. Since, according to Frege, the thought has an absolute truth-value, so has the utterance.[3]

Now some philosophers of language are prepared to abandon the orthodox view that utterances have absolute truth-values. The idea at the core of ''semantic relativism'' is that the content of an utterance can survive variations in truth-value, even when the world of evaluation is fixed. Within the same possible world, utterance-content can be true relative to one partial situation or ''point of evaluation'' (Predelli, 2005) but false relative to another. It has been argued that relativizing utterance-truth is independently needed to handle assertions about future

states of affairs (MacFarlane, 2003), epistemic modals (MacFarlane, 2005b), scalar predicates like 'rich' and 'tall' (Richard, 2004) and matters of personal taste such as ''Roller coasters are fun'' (Lasersohn, 2005).

What are the cognitive implications of semantic relativism? This depends on whether the connection between utterance-truth and thought-truth is maintained or not. Some relativists indeed sever this connection, by contending that the parameters relative to which the utterance is to be evaluated are determined by the speaker's intentions, the topic of conversation or the expectations of the conversants (see, e.g., Predelli, 2005, p. 365). This seems to suggest that the *thought* expressed by the utterance fixes these parameters and thus is not itself relative to them. On this interpretation, the cognitive implications of semantic relativism are dim. As in the case of moderate linguistic contextualism, what is not represented at the level of language gets represented at the level of thought.

4. Cognitive Relativism

Maintaining the Fregean connection while denying the absoluteness of thoughts yields a more ambitious version of semantic relativism, which implies an analogous form of relativism at the level of thoughts. According to what can be called ''cognitive relativism,'' the very same thought can be true in one situation and false in another even though the same possible world is in question. This idea is implicit in John Perry's defense of the view that there can be ''thought without representation.'' On this view, a thought can ''concern'' (his terminology) a contextual feature that is not mentally represented. For instance, the thought *It's raining* is true or false only relative to a particular place that need not be mentally represented (or representable) by the thinker.[4]

Perry's view is not restricted to conceptual thoughts. He holds a similar view with respect to perceptual (visual) contents:

> [S]imply to understand the fact that I duck when I see the ball, or the way hunger and perception of a milk shake leads me to move my arm, we need not postulate a self-representation. (Perry, 1993, p. 220)[5]
> [O]ur most primitive knowledge about ourselves lacks any [component standing for us]: basic self-knowledge is intrinsically selfless. (Perry, 1993, p. 205)

In general, perceptual spatial contents are correct or incorrect only relative to a non-represented frame of reference centred on a particular viewer (at a given time).

What are the prospects of cognitive relativism? Note that a true cognitive relativist should deny that there is a *privileged* or *unique* context relative to which a thought is to be evaluated. John MacFarlane is among the few relativists who bite the bullet in this respect, since he argues that utterance-content is true or false relative to a context of *assessment* (see MacFarlane 2005a), and of course there is no *a priori* limit to such contexts. However, rejecting the uniqueness of contexts in the cognitive case is sometimes counterintuitive. Perry himself, commenting on the ducking example, cites facts about the subject's control systems as grounding the perceptual thought

that a ball is approaching.[6] These facts seem to provide the salient context relative to which this thought is to be evaluated as true or false; it is true if and only if the ball is approaching *the subject*. Other contexts simply seem irrelevant from the point of view of understanding the subject's rationality.

Now a cognitive relativist who accepts the uniqueness assumption faces a problem. The problem is to explain why the facts that anchor a thought to its privileged context of evaluation are not represented within the thought after all. Perry insists that anchoring facts supplying the needed coordination between perception and action are ''external to the belief.'' However, Perry's insistence might be just the remnant of an internalist prejudice. The fact that there is a privileged context pertaining to the evaluation of a thought may show that the thought already takes into account the relevant contextual parameters. This would mean that the thought cannot be said to be true or false *relative* to these parameters. For instance, if the subject is somehow represented within her thought that the ball is approaching, the thought is not true relative to her; it is true *tout court*. I shall come back to this point in the last sections of this paper.

Cognitive relativism is a bold and interesting approach, which may well be appropriate to some cases of thoughts. The point raised in this section is that it presupposes a substantial notion of representation, which has yet to be defined or at least clarified further. In what sense does the perceptual thought or content that a ball is approaching not represent the subject given that it is grounded on *her* visual experience? Or should we say that the subject is incorporated into the thought without being represented? In the absence of clear answers to these questions, the prospects of cognitive relativism cannot be evaluated, which I think motivates exploring other alternatives.

5. Relevance Theory

Relevance theory provides one such alternative. Relevance theorists (Carston, 2002; Sperber & Wilson, 1998; Wilson & Sperber, 2002) contend that linguistic understanding depends on grasping *ad hoc* concepts that are not lexically encoded but constructed in an occasion-specific way constrained by expectations of relevance. For instance, one may suggest that the thoughts typically communicated by the utterances (1)–(9) involve the following *ad hoc* concepts, indicated here by hyphens:

10. *It's raining-here*
11. *It's over-now*
12. *The book is to-my-left*
13. *The bar which is local-relative-to-here is open*
14. *Everybody-in-the-classroom should be attentive*
15. *You're not going to die-from-that-cut*
16. *Here is the book written-by John*
17. *It's 3 o'clock-relative-to-this-time-zone*
18. *These events are simultaneous-relative-to-this-inertial-frame*

Relevance theorists appeal to the notion of *ad hoc* concept in order to reanalyze the relationship between language and thought. They claim that linguistically-encoded meaning is far more schematic and fragmentary than is usually thought, and that natural-language words are best seen as encoding ''pro-concepts,'' namely pointers to an open set of *ad hoc* concepts. Interestingly, they also point out that their account of linguistic understanding downgrades moderate linguistic contextualism's notion of unarticulated constituents. Consider an utterance of 'Mary opened the door', in a context in which it is intuitively true if and only if Mary opened the door in a specific way, namely *with a key*. The thought literally expressed by this utterance involves the *ad hoc* concept *open-with-a-key*. There is no need to postulate the key as a ''hidden'' or ''unarticulated'' propositional constituent in order to complete a ''neutral'' linguistic meaning which would leave open Mary's way of opening the door (Wilson & Sperber, 2002).

6. *Ad hoc* Concepts

The notion of *ad hoc* concept used in relevance theory comes from the psychology of concepts. One of the most intriguing claims of recent cognitive science is that mental representations of objects and properties are very often constructed ''on the fly,'' depending on the current cognitive task. In several empirical studies, Larry Barsalou (1983, 1987, 1999) has investigated so-called ''*ad hoc* categories,'' such as ''things to pack in a suitcase'' and ''things to take from one's home during a fire,'' which are instrumental to achieving particular goals. Unlike common categories like ''fish'' and ''apple,'' *ad hoc* categories are not well established in long-term memory. In Barsalou's theory, they are temporary constructions activated in working memory:

> People have the ability to construct a wide range of concepts in working memory for the same category. Depending on the context, people incorporate different information from long-term memory into the current concept that they construct for a category. (Barsalou, 1987, p. 118)

For instance, I do not have to activate all of my encyclopaedic knowledge of fish when I think about them in a particular context. I can use different clusters of information when I am in a restaurant and when I am scuba diving. I may construct *ad hoc* concepts of categories such as ''fish that is ready to eat'' and ''fish to observe'' out of the common category ''fish.'' These concepts are associated with different ''packages of situation-specific inferences'' (Barsalou, 2005). For instance, a fish-that-is-ready-to-eat is typically cooked and placed on a plate, whereas a fish-to-observe is typically swimming in the water. Barsalou and his collaborators have convincingly shown that *ad hoc* categories behave in interesting ways like common categories. For instance, they have a ''graded structure,'' in the sense that some members of the category are judged to be more typical than others (Barsalou, 1983).

Two caveats should be mentioned before the notion of *ad hoc* concept is put to work. First, this notion is independent of Barsalou's neo-empiricist view according

to which *ad hoc* concepts are perceptually derived representations. This is a very controversial view (also defended by Prinz, 2002), and it is not entailed by the very idea of *ad hoc* concepts.

Second, the notion of *ad hoc* concept should not be thought to entail an epistemic account of concepts of the kind Fodor (1998) strongly opposed. Indeed, what have been called ''*ad hoc* concepts'' are in fact *conceptions* of various objects and properties, and as such embody *knowledge* of the categories they represent. For convenience, I shall stick to the term '*ad hoc* concepts', but eventually we should perhaps acknowledge that the same concept of dog can be associated with different *ad hoc* conceptions depending on the relevant cognitive task.[7]

7. A Puzzle

Because it acknowledges that the semantic interpretation of an utterance heavily and systematically depends on the extra-linguistic context, relevance theory is a form of linguistic contextualism. Should we also think of it as embodying a form of cognitive contextualism? Well, it depends on how *ad hoc* concepts, and thoughts composed of them, are analysed. Consider an utterance of 'Everybody should be attentive' by a teacher who wants to convey the thought that everybody in her classroom should be attentive (i.e., the domain of the quantifier 'everybody' is implicitly restricted). The teacher's thought will typically involve the *ad hoc* concept *everybody-in-the-classroom* – a useful category given her context.

Does it follow that the teacher has a mental representation of a particular classroom? If the answer is ''yes,'' it seems that all semantically relevant aspects of the utterance are articulated or made explicit at the level of thought, and there is no room for cognitive contextualism. There is no interesting sense in which the *ad hoc* thought *Everybody-in-the-classroom should be attentive*, once it has been formed, is context-dependent. At least, it does not seem to be *more* context-dependent than the thought *Everybody in the classroom should be attentive*, which is composed in the usual (logical) way of the concepts *everybody*, *classroom*, *being in*, and so on.

If the answer is ''no,'' namely if the teacher need not form a mental representation of a particular classroom, the *ad hoc* concept *everybody-in-the-classroom* is different from the logically complex concept *everybody in the classroom*, which (by definition) involves such a representation. Indeed, Barsalou's findings show that *ad hoc* concepts often behave *as if* they were logically non-composed, simple concepts. Now this raises a puzzle that I do not think has been adequately dealt with. Surely, the *ad hoc* concept *everybody-in-the-classroom* owes *something* to the universal quantifier concept *everybody*. It does not seem acceptable to acknowledge that they are different concepts, and leave the matter at that. One has the feeling that the former concept is somehow derived from the latter. (Moreover, this feeling seems to be independent of the issue of whether the English verb 'everybody' encodes a non-restricted universal quantifier concept.) The puzzle, then, is to understand the nature of the derivation, assuming that the *ad hoc* concept is not literally *composed* of the

other concept. In order to solve this puzzle, one should enquire further into the way *ad hoc* concepts work in the mind of a cognizer.

8. The Dual Role of Thoughts

According to a familiar picture (which goes back at least to Sellars, 1974), there are two dimensions to the use of a particular thought. First, the thought has an *inferential role*, which determines its ability to interact inferentially with other thoughts. The relevant inferences can be purely formal (like the inference from *Claire is asleep* to *Someone is asleep*) or material (like the inference from *It's raining* to *The streets will be wet*). Some notion of thought-constituent emerges at the former level. More precisely, the constituents of a thought (its structural elements) are those on which formal inferences involving it can hinge. For instance, it is part of the inferential role of the thought *Claire is asleep* that it can interact with other thoughts in which the constituents *Claire* and *is asleep* figure separately, as in the following inference: *Claire is asleep. Claire is my sister. So my sister is asleep*. This formal inference hinges both on Claire and on the property of being asleep.

Formal complexity corresponds to cognitive complexity. Drawing inferences that hinge on some entity in the world is a substantial cognitive achievement. For instance, in order to make sense of the inference about Claire, the subject must be able to identify her across inferentially connected thoughts (*Claire is asleep* and *Claire is my sister*), which depends on possessing some criterion of identity appropriate to Claire.

There is an interesting analogy with the use of language here. Recanati (1997) has pointed out that an entity that is explicitly referred to in using a word is selected from a ''paradigm'' of other relevant entities in the discourse situation:

> When I say ''In Paris, it is raining'', this makes sense only insofar as the location Paris is virtually contrasted with some other location, such as London or the country. This is a point which European ''structuralism'' has much insisted on: whatever is singled out in speech is extracted from a ''paradigm'' or contrastive set. (pp. 54–55)

An analogous point holds at the level of thought. In general, the entity on which an inference hinges is extracted from a cognitive ''paradigm'' of several (postulated) entities. Using a criterion of identity for Claire will also allow the subject to contrast Claire with other persons relevant to the current cognitive task, as in the inference *Claire is my sister. The owner of this car is not my sister. So Claire is not the owner of this car*. In this inference, Claire is extracted from a paradigm that includes at least one other person, described as the owner of a demonstrated car.

The second dimension of thought is its *epistemic-pragmatic role*. A thought is not only inferentially related to other thoughts; it is also anchored to perception and action. Of course, a thought's epistemic-pragmatic role depends on its inferential role, since it can be related to perception and action more or less indirectly, through (formal and material) inferences involving other thoughts. It is epistemically

connected to perception, in the sense that, together with other thoughts, experiences can act as evidence for its truth. It is pragmatically connected to action, in the sense that, together with other thoughts, it can have behavioural consequences.

On the whole, the evidential and the consequential features of a thought should be coherent. More precisely, they should exhibit ''harmony,'' in Dummett's generalized sense (see Dummett, 1991, ch. 9). The notion of harmony was first used in logic, as a requirement on the introduction and elimination rules associated with a given connective. For instance, Prior's (1960) famous ''tonk'' rule is not harmonious, because, roughly speaking, it allows one to infer more than what one is initially given. From *p*, one can infer *p tonk q* (introduction rule for 'tonk'); and from *p tonk q* one can infer *q* (elimination rule for 'tonk'). Dummett has usefully generalized the logical notion of harmony to deal with the meaning of non-logical words. For instance, an introduction rule for the demonstrative thought *That figure is round* includes the conscious perception of an object as being round, and an elimination rule includes the motor instruction to reach toward this object (see Campbell, 2002). These rules are harmonious only if they concern the same object in the world.

In the following sections, I shall develop a suggestion about the formation of at least some *ad hoc* concepts. The suggestion is that these concepts imitate the impact that more sophisticated concepts would have on perception and action were they used in the relevant cognitive task. I shall first deal with thoughts typically expressed by indexical utterances, which hopefully will provide a model or exemplar for understanding other, non-indexical *ad hoc* concepts.

9. Proto-Indexical Thoughts

Consider the following thoughts, which are typically expressed by utterances respectively of 'It's raining here' and 'It's raining':

19. *It's raining here*
20. *It's raining-here*

What is the difference between them? To begin with, (19) can participate in inferences hinging on a particular place. For instance, together with the thought *Here is Paris*, it implies the thought *It's raining in Paris*. In order to make sense of this inference, the subject needs to master a substantial conception of the relevant place, which is cross-identified in the premises of the inference. Just as a particular place is referred to, something is predicated of it. (19) involves our ''official'' concept of rain as a spatially located event.

In contrast, the *ad hoc* thought (20) cannot participate in inferences hinging on a particular place. It is inferentially encapsulated with respect to thoughts that explicitly refer to raining places. It does not involve any predication of a place. At the inferential level, a one-place concept of rain (*rain at time* t) is used instead of the official two-place concept of rain (*rain at time* t *and location* l). The former is derived from the latter in the following way: the subject's criterion of identity for rain events

is silenced, and she is left with a mere ''criterion of application'' (Dummett, 1973, ch. 4), which is sensitive to the local presence of rain. We use the simpler concept when the cognitive task does not involve any comparison with other places in which it might rain or not. As Perry (1993) has emphasised, there are familiar tasks of this sort:

> Talking on the phone and reading the national weather reports are one thing, talking to someone in the same room about the weather is a bit different. Our reaction to the local statement ''It's raining'' is to grab an umbrella, or go back to bed. No articulation of the fact that the reporter's place and our place are the same is really necessary. (p. 216)

The *ad hoc* thought (20) has the inferential role of a feature-placing thought, in something like Strawson's (1959) sense. Still, it is not a mere feature-placing thought. Its epistemic-pragmatic role is *modelled on* or *mimics* the behaviour the more complex thought (19) would exhibit in the same situation. It is sensitive to what can be locally perceived, and it is geared to action *at the very same place* (thus ensuring harmony).[8] I shall say that it is ''proto-indexical''.

In general, a proto-indexical thought mimics contextually relevant aspects of an indexical thought's epistemic-pragmatic role without being able to participate in inferences hinging on what is indexed. The thoughts that can be expressed by 'It's raining', 'It's over' and 'The ball is to the left' are all proto-indexical relative to the cognitively more sophisticated thoughts *It's raining here*, *It's over now*, *The ball is to my left*. They involve the *ad hoc* concepts *raining-here*, *being-over-now* and *being-to-my-left*.

Some indexical thoughts are based on mere dispositions to gather information about what is indexed in the world. This is the case with a thought like *I will live forever*, which can be formed in the absence of any self-related information actually received by the subject. Other indexical thoughts are based on more actively keeping track of what is indexed. This is the case with a thought like *It's hot in this place*, formed on the basis of visually attending a particular place (see Evans, 1982, ch. 6). Similarly, proto-indexical thoughts can be more or less active. In some cases, the fact that a proto-indexical thought is geared to action relative to the very contextual feature to which it is perceptually sensitive is guaranteed as it were *a priori*, by virtue of the embodied subject's cognitive architecture. In other cases, this fact is guaranteed by an active capacity to keep track of the relevant feature (I can think *It's hot-here* about a place I visually keep track of while moving around it). The thought can remain proto-indexical because the mere practical capacity to keep track of something is not enough to establish a cognitive contrast between that thing and other potentially relevant things.

10. Sub-Inferential Monitoring

The claim so far is that *ad hoc* versions of indexical thoughts can be formed through what I shall call ''sub-inferential monitoring,'' namely harmony-preserving control

at the epistemic-pragmatic level that works independently of inferential mechanisms. Can this claim be generalized beyond the sphere of indexicality? In this section, I shall tentatively consider other potential cases with a similar structure.

Consider first the case of quantifier domain restriction. It can be effected either explicitly, at the level of inferential role, or implicitly, directly at the level of epistemic-pragmatic role. Consider the following thoughts:

21. *Everybody in the classroom should be attentive*
22. *Everybody-in-the-classroom should be attentive*
23. *Everybody should be attentive*

The thought (21) involves an explicit restriction of the domain of *everybody*. Its inferential role licenses various inferences, including the inference to the more complex thought *Everybody in some classroom should be attentive*. The subject can make sense of this inference because her thought involves some conception of what counts as a particular classroom as opposed to others. In other words, it involves some criterion of identity for classrooms. Inferences involving the thought can then hinge on a particular classroom. In general, drawing inferences that hinge on something (an object or a property) is cognitively demanding. For instance, grasping thought (21) requires possessing an identifying conception of a particular classroom as opposed to other classrooms. This is useful if the thought is to interact inferentially with thoughts about other students in other classrooms.

However, the teacher is not currently interested in comparisons with other classrooms; she just wants her students to be attentive. She does not need an identifying conception of the classroom she is presently occupying. This is why she uses the *ad hoc* thought (22). I would like to suggest that it has the same inferential role as the simpler thought (23), which involves an unrestricted universal quantifier. In particular, neither (22) nor (23) can participate in inferences hinging on a particular classroom (which is not even relevant in the case of the simpler thought). Both are, so to speak, blind to classrooms.

If the thoughts (22) and (23) have the same inferential role, what is the difference between them? On the present suggestion, the *ad hoc* thought involves an *implicit* quantifier domain restriction. Some low-level cognitive mechanisms restrict the epistemic-pragmatic role of the thought to particular students in a particular classroom. Of course, holistic constraints imply that a whole chain of thoughts will be thus restricted. As a consequence of this contextual restriction, ways of establishing the thought involving students outside the room are simply never considered. Similarly, no practical conclusion is reached which concerns students in irrelevant classrooms. There might be relatively cheap inhibitory processes that select the inputs and outputs of the thought's inferential role (while preserving harmony between them). With respect to her *ad hoc* thought (22), restriction of the domain of quantification does not operate explicitly, at the level of inferential role. Rather, it operates implicitly, at the level of epistemic-pragmatic role, in such a way that (22) is inferentially encapsulated with respect to more complex thoughts such as *Everybody in some classroom should be attentive*.

As another illustration of the claim that sub-inferential monitoring underlies the formation of (at least some) *ad hoc* concepts, consider an utterance of 'Mary opened the door'. Depending on the context, it can evoke one of the following thoughts:

24. *Mary opened the door with a key*
25. *Mary opened-with-the-key the door*
26. *Mary opened the door*

The thought (24) can participate in inferences hinging on ways of opening the door. It can be formed in a context in which there is an issue as to how Mary opened the door. She opened it with a key rather than, say, by just pushing an unlocked door. The utterance can also convey the more general thought (26) in (rarer) contexts in which no specific way of opening the door has been made salient. The inferential roles of (24) and (26) are clearly different. For instance, (24) implies that Mary did not open the door by just pushing it, while (26) does not have this implication.

Now suppose that the context is such that a specific way of opening the door, namely with a key, has been made salient, but no other way of opening the door is relevant. In this context, the subject has no need for a thought like (24), which involves an identifying conception of a way of opening the door. She has no need for such a thought because her cognitive task won't involve any comparison between ways of opening doors.

One possibility, then, is that the subject uses a thought that satisfies the following two conditions. First, it is inferentially on a par with (26): it cannot participate in inferences hinging on a specific way of opening the door. It does not wear a reference to a specific way of opening on its inferential sleeves, so to speak. In that respect, it is conceptually less sophisticated than (24). Second, it nevertheless mimics relevant aspects of the epistemic-pragmatic role of (26). The subject is disposed to restrict the use of her thought to selected inputs and outputs. More precisely, she is disposed to consider as evidential data relevant to her thought only cases of opening the door with a key, and she is disposed to act on her thought only in ways compatible with this way of opening the door. When these two conditions are satisfied, the subject forms the thought (25), which involves the *ad hoc* concept *open-with-a-key*.

This may seem abstract, but the idea is in fact relatively simple. *Prima facie* at least, there is no incoherence in supposing that the reference to a specific way of opening shows up in the way the thought is used with respect to perception and action, rather than in inferences in which more sophisticated thoughts like (24) can participate. For instance, the subject who is in the relevant context would react to a request like 'Please open the door' *only* by opening the door with a key. Harmony implies that the use of the thought is equally restricted on the evidential side. For instance, the subject would answer the question 'Has the door been opened?' *only* by enquiring whether it has been opened in the right way. Of course, there is room for the *ad hoc* concept *open-with-a-key* only if sub-inferential monitoring of this sort is a less substantial cognitive achievement than deploying an identifying conception of a specific way of opening the door (see Dokic, in press, for further discussion of this point).

Of course, these remarks are merely suggestive, but they point to a possible solution to the puzzle about *ad hoc* concepts that was raised above. *Ad hoc* concepts seem to owe something to other, more stable concepts. For instance, the *ad hoc* concept *everybody-in-the-classroom* seems to be derived from the unrestricted universal concept *everybody*. We now see that even though the former is not literally composed of the latter, both concepts are inferentially similar. The unrestricted concept is exploited but its use is modified in such a way that a different, implicitly restricted concept is eventually grasped.

On the present suggestion, cognitively simple concepts can be used in some contexts as proxies for more complex ones. However, this cognitive strategy has also a drawback. *Ad hoc* concepts will often be less determinate than the concepts whose epistemic-pragmatic role they mimic. For instance, the *ad hoc* concept *open-with-a-key* mimics relevant aspects of the epistemic-pragmatic role of the more complex concept *open with a key*, but the resemblance may be quite partial if this is enough for the purposes of the current task. The indeterminacy will perhaps be less severe when the subject can exploit an actual relationship with a contextual feature, as in the case of proto-indexical thoughts.

11. Moderate Cognitive Contextualism

The foregoing account of *ad hoc* concepts is more moderate than cognitive relativism. Unlike the latter, it is compatible with the standard Fregean claim that thoughts are true or false absolutely. For instance, the thought typically expressed by 'It's raining' is not true or false relative to a particular place, since it involves the *ad hoc* concept *raining-here*, which already takes into account the relevant place at the sub-inferential level.

This account still belongs to the contextualist camp, and I shall accordingly call it ''moderate cognitive contextualism.'' It exploits a distinction between *cognitive relevance* and *inferential relevance*, and claims that some cases of cognitive relevance involve context-dependent mechanisms. Let me elaborate on these points.

Let's say that a worldly parameter *P* is *inferentially relevant* to a thought *T* when *T* can participate in inferences hinging on *P*. For instance, the place the thought *It's raining in Paris* is about is inferentially relevant. Together with the thought *Paris is the capital of France*, it formally implies *It's raining in the capital of France*. If a parameter *P* is inferentially relevant to a thought *T*, *P* is a propositional constituent of *T*. The thought *It's raining in Paris* is about Paris, which is a constituent of the (Russellian) proposition associated with the thought.

The notion of inferential relevance also applies to *ad hoc* thoughts. Consider the thought typically expressed by 'It's raining', namely *It's raining-here*. The complex property of raining at a particular place (typically the thinker's) is inferentially relevant to it. This is why the inference from *It's raining-here* to *It's not sunny-here* is licensed, where the complex property of raining at a given place is conceptually contrasted with the complex property of being sunny at this very place. It does not

follow that the place itself is inferentially relevant to these thoughts. Since they do not involve an identifying conception of it, they cannot participate in inferences hinging on it. This shows that a complex property can be inferentially relevant even though its constituents are not.

When a parameter is inferentially relevant to a thought, I shall say that it is *cognitively articulated*, more precisely that it is a *cognitively articulated constituent* of the proposition associated with the thought. This terminology is justified by the fact that, as we have seen above, the cognitive requirements for inferential relevance are analogous to the cognitive requirements for a parameter to be linguistically articulated.

Obviously, since inference is a cognitive achievement, everything that is inferentially relevant is cognitively relevant. The foregoing account of *ad hoc* concepts shows that the converse is not true. A particular place, typically the thinker's, is cognitively relevant to the *ad hoc* thought *It's raining-here*. The thought is anchored to this place thanks to a (more or less active) control loop that independently narrows down its epistemic-pragmatic role. As a result, the thought is sensitive to what is going on around the thinker, and is geared to action at (roughly) the same place. This cognitive mechanism contributes to the thought's having a determinate content. Were it absent or malfunctioning, the thought would not be about the complex property of raining *at a particular place* (at best it would be about a spatially neutral feature registering the presence of rain). However, this place is not inferentially relevant, for the *ad hoc* thought is not sophisticated enough to participate in inferences hinging on it.

When a parameter is cognitively but not inferentially relevant to a thought, I shall say that it is ''cognitively unarticulated,'' more precisely that it is a ''cognitively unarticulated constituent'' of the proposition associated with the thought.

It is important to note that the notion of cognitively unarticulated constituent is somewhat independent of the analogous notion at the heart of moderate linguistic contextualism. Typically, a linguistically articulated constituent is also cognitively articulated. For instance, if I utter 'It's raining in Paris', I am probably deploying some concept of Paris at the level of thought.[9] However, an utterance's unarticulated constituent may not be cognitively unarticulated. I can utter 'It's raining' while thinking *It's raining here*, i.e., having some identifying conception of the place where I say that it is raining.

12. Two Modes of Representation

I have deliberately not used the vexed notion of representation in introducing the distinction between cognitively articulated and cognitively unarticulated constituents. Now the question can be raised of what constituents can be said to be *represented* by the thought (or rather by its thinker). It is reasonable to say that a thought represents its cognitively articulated constituents, but what about mere cognitively unarticulated constituents? Does the thought represent them? On an

austere view, what is represented coincides with what is inferentially relevant. This might be the view preferred by friends of the language of thought hypothesis, since part of the motivation for the latter is to explain the systematic role thought plays in inferences.

On a different view, mere cognitively unarticulated constituents are represented, albeit in a different way than cognitively articulated constituents. This might be the view favored by cognitive scientists and philosophers who want to relax the notion of representation, or distinguish between various forms of mental representation. As Andy Clark (1997) suggests:

> [W]e should not be narrow-minded about the nature of the inner events that help explain behavioral success . . . . Stories invoking internal representations . . . may come to coopt such highly complex, non-local, dynamical processes as the vehicles of specific kinds of information and knowledge. (p. 174)

Coordinating mechanisms tampering with the roles of thoughts at the sub-inferential level might be considered as "minimally" representing the world, at least in cases where the indeterminacy is not too severe. For instance, the *ad hoc* thought *It's raining-here* involves a minimal representation of a particular place.[10]

Rob Wilson's (2004) notion of "exploitative representation" also belongs here. Here is how he defines this notion:

> Exploitative representation is an efficient form of representation when there is a constant, reliable, causal or informational relationship between what a device does and how the world is. Thus, rather than encode the structure of the world and then manipulate those encodings, "smart mechanisms" can exploit that constancy. (p. 164)

The construction of the *ad hoc* thought *It's raining-here* involves a smart mechanism of this kind, which exploits the thinker's spatial situation in order to align the place of perception with the place of action.

A consequence of the relaxed view of mental representation is that the scope of "thought without representation" is limited. Consider again Perry's example of "selfless self-knowledge." His insight can be reframed as follows. I am not represented in perception in the way the approaching ball is represented. Both things are mentally represented, but in quite different ways. The ball is a cognitively articulated constituent of perceptual content, while I am just a cognitively unarticulated constituent. Perceptual content has the form of the *ad hoc* thought *A ball is approaching-me* as opposed to the more complex thought *A ball is approaching me* (without hyphens). Temporal and causal facts about my control systems will ensure that the person ducking is the same as the person whom the ball is rushing toward, namely me. There is no obstacle to considering these facts as realizing a primitive form of self-representation. It follows that I am represented in perception after all, although minimally, as a cognitively unarticulated constituent.

If we accept this view, all thought-constituents are represented in some way or other. A thought-constituent can be represented at the level of inferential role,

through an identifying conception, which can be *ad hoc* or not. In this case, it is said to be cognitively articulated. It can also be represented at a more implicit, sub-inferential level, as a worldly parameter that plays a contextual role in channeling the thought's epistemic-pragmatic role. In contrast to an identifying conception, such minimal representation does not allow for a cognitive contrast between the constituent and other, potentially relevant ones. In this case, the constituent is said to be cognitively unarticulated.

13. Conclusion

In this paper, I have tried to exploit insights from linguistic contextualism in an account of thoughts that are tailored to a specific cognitive task—thoughts composed of so-called *ad hoc* concepts. Different versions of linguistic contextualism have been mentioned. Moderate linguistic contextualism introduces the important notion of unarticulated constituents, but as it is, this notion is not very helpful in explaining how an utterance's unarticulated constituents are mentally represented. Semantic relativism suggests that they are not propositional constituents of the utterance after all. Cognitive relativism claims that they are not even mentally represented, but this claim presupposes a more substantial notion of representation than is usually given.

Reflection on the notion of *ad hoc* concept, introduced by cognitive psychologists and at the core of relevance theory, suggests that a modest form of cognitive contextualism may be enough to account for at least some of the cognitive phenomena Perry and other contextualists have drawn our attention to. The key distinction is between cognitively articulated and cognitively unarticulated constituents. This distinction is independent of the corresponding distinction in the linguistic case, and can be defined in terms that are neutral with respect to the language of thought hypothesis. Roughly, cognitively articulated constituents are inferentially relevant in a way cognitively unarticulated constituents are not, but it does not follow (at least not without further argument) that they are referred to by some kind of mental symbols.

While cognitive relativism claims that a given thought is true or false relative to a contextual feature (other than a possible world) that is not represented, moderate cognitive contextualism makes the point that this feature may be a cognitively unarticulated constituent. Thinkers can exploit the context in which they perceive and act in order to form *ad hoc* thoughts and dispense with formally identifying some of their cognitively relevant constituents. Since cognitive exploitation can be seen as a form of (minimal) representation, cognitively unarticulated constituents are still mentally represented.

It does not follow that cognitive relativism is wrongheaded. On the contrary, it is quite possible that there are cases of relative thought-truth. In fact, we can now give a more precise formulation of cognitive relativism. It is the claim that thoughts can be true or false relative to contextual features that are neither cognitively articulated

nor cognitively unarticulated. In this paper, I leave open the question of what thoughts have relative truth-values in this sense.

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Notes

[1] See also Borg (2004), which is also in the spirit of semantic minimalism.

[2] Recanati (2004) contains a very useful presentation of the relevant issues.

[3] See Evans (1985, ch. 12) for an influential defence of the Fregean view based on apparently non-negotiable features of assertion. Full-blown relativists, such as John MacFarlane, have opposed Evans's argument and put forward a non-standard account of assertion.

[4] I shall use italics when thoughts rather than linguistic representations are in question.

[5] Arguably, Perry's examples are not on a par. Perhaps the ducking example does not involve any representation; *a fortiori*, it does not involve any self-representation. The case is different with the milk shake example, which involves some form of practical reasoning.

[6] ''The eyes that see and the torso or legs that move are parts of the same more or less integrated body'' (Perry, 1992, p. 219). See also Corazza (2004, especially ch. 2) who contends, in a Wittgensteinian spirit, that our thoughts are anchored to non-represented contexts determined by ''language-games'' and ''forms of life.''

[7] Interestingly, Barsalou (2005) calls *ad hoc* representations ''conceptualizations,'' and defines a concept as a productive ability to generate many different situated conceptualizations.

[8] Harmony is relative to thought-content. Consider a subject who utters 'It's raining' on the basis of her visual experience of the weather in Paris. She takes the train to Marseille and, a few hours later, acts on the basis of her initial thought by opening her umbrella there. The subject exhibits disharmony with respect to the *ad hoc* thought *It's raining-here* (since seeing the weather in Paris does not tell us anything about the meteorological condition in Marseille), but she exhibits harmony with respect to a mere feature-placing thought (which is indeed the only coherent thought-content she is grasping).

[9] Here is a more controversial case. Suppose Wittgenstein is right and there are purely expressive uses of 'I'. For instance, an utterance of 'I'm tired' expresses the subject's tiredness, and is not associated with an identifying self-conception. The subject forms a neutral or impersonal thought like *There is tiredness*. In other words, the subject is a cognitively unarticulated constituent of the thought. Arguably, though, the subject is still a linguistically articulated constituent of the utterance.

[10] The term 'minimal representation' is itself used by Clark in a consonant sense.

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