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Situated mental representations* [second draft]

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0. Introduction

Situation theorists such as John Barwise, John Etchemendy, John Perry and François Recanati have put forward the hypothesis that linguistic representations are situated in the sense that they are true or false only relative to partial situations which are not explicitly represented as such. Following Recanati's lead, I explore this hypothesis with respect to mental representations. First, I introduce the notion of unarticulated constituent, due to John Perry. I suggest that the question of whether there really are such constituents should divide in two issues, one concerning language and the other concerning thought (§1). Then I formulate a dilemma that any friend of cognitive unarticulated constituents must face: alleged unarticulated constituents seem to be either articulated or non-constituents after all (§2). The dilemma is strengthened by the fact that unarticulated constituents cannot be inferentially relevant (§3). In §4, three constraints on entertaining situated representations are spelled out. First, although the situation within which one is immersed is not represented as such, there must be cognitive facts that make immersion possible, and explain why one is implicitly related to a particular situation as opposed to another. Second, the move from a given representation to one which articulates the situation requires the capacity to contrast the latter with others in the same range. Third, I suggest that conceptual representations differ from non-conceptual ones in the permanent possibility of detachment that they allow. I then illustrate how these constraints work in three sorts of cases. In the first, thoughts like *It's raining* and *It's over* are implicitly related to their situations via some practical capacity of keeping track of particular places or times (§5). In the second sort of cases, the relevant situations are not given, but stipulated, like in *In Constance, it's raining* (§6). Cases of the third sort are those in which an unarticulated constituent is relevant to a whole system of representations, for instance the perceptual system (§7). In the last section, I use the notion of

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ad hoc representation to defend the cognitive application of situation semantics against an important objection.

1. Unarticulated constituents: language and thought

Consider the following sentences (Perry, 2001, p. 44):

- (1) It is raining

- (2) They are serving drinks at the local bar

Many utterances of (1) are true if and only if it is raining at a particular place, typically where the speaker is. Similarly, many utterances of (2) are true if and only if the people referred to by ‘they’ are serving drinks at a particular bar, typically located in the speaker’s neighborhood. Nevertheless, there is no item in the sentence (1) that designates the place where it is raining, just as there is no item in (2) that designates the location relative to which the bar is described as local.

In Perry’s terminology, the relevant places are *unarticulated constituents* of the propositions expressed by utterances of (1) and (2). For instance, the place where it is raining ‘is a constituent, because, since rain occurs at a time in a place, there is no truth-evaluable proposition unless a place is supplied. It is unarticulated, because there is no morpheme that designates the place’ (2001, p. 45). The idea is that the interpreter has to look to the context *after* she has identified all the words and their meanings in the sentence; the context is used in a ‘content-supplemental’ way. In this respect, (1) and (2) differ from the explicitly indexical sentences ‘It is raining here’ and ‘They are serving drinks at the bar in this neighborhood’, which articulate the relevant places.

It is worth distinguishing here two issues which are *prima facie* independent, although Perry himself has often both in mind. The first issue is about language, whereas the second is about thought.¹ At the level of language, the relevant question is whether what is literally said by an utterance of ‘It’s raining’ (the ‘official’ proposition expressed by the sentence in context) can involve an implicit reference to a particular place even though there is no item,

¹ On the difference between unarticulated constituents at the level of language and unarticulated constituents at the level of thought, see also Corazza, 2002, to which I am indebted in what follows.

context-sensitive or not, corresponding to it in the syntactic or sub-syntactic structure of the sentence uttered. In other words, can one literally say that it is raining at a particular place by using only a one-place predicate ‘rain’ true of times? If the answer is ‘yes’, the place is a *semantic* unarticulated constituent of the linguistic representation ‘It is raining’. Some authors, like Stanley (2000, 2002), doubt that there are unarticulated constituents in this sense, and defend the view that all alleged unarticulated constituents turn out to be articulated at a deeper level of syntactic structure or logical form.²

The issue at the level of thought, as I see it, is whether what is *thought* in an utterance of ‘It is raining’ can involve an implicit reference to a particular place even though no constituent of the thought designates it. Let us say that the constituents of thoughts are *concepts* or *modes of presentation* of various objects and properties. When a subject thinks *It’s raining*,³ can her thought in some sense concern a particular place while she does not grasp any mode of presentation of that place? Can she just deploy in thought the one-place concept *rain*, saturated by a mode of presentation of the present time?⁴ If the answer to these questions is ‘yes’, the place is a *cognitive* unarticulated constituent of the thought *It’s raining*.

Interestingly, the two issues might be independent. Even if Stanley is right and there is no English predicate ‘rain’ true of times only, *some* thoughts naturally expressed by ‘It’s raining’ might involve the one-place concept *rain*. Conversely, if Stanley is wrong, as Recanati (2002) recently argued, and the sentence ‘It’s raining’ can involve a one-place predicate true of times, it is still possible that the thought naturally expressed by this sentence involves a mode of presentation of a particular place.

Take Stanley’s main argument to the effect that all constituents are articulated in some sense. This is the *Argument from Binding*. Stanley claims that if there are unarticulated constituents, they cannot vary with the values introduced by operators in the sentence uttered. Now, it is possible to prefix ‘It’s raining’ with a spatial operator, like in ‘Everywhere I go, it’s raining’. In the last sentence, ‘rain’ is a two-place predicate, for the operator must bind a variable for a place. However (the argument goes on), in the original sentence as well, ‘rain’ is a two-place predicate, for there seems to be only one predicate ‘rain’ in English. Thus, an

² See also Fodor, 2001.

³ I shall adopt the convention of using italics for descriptions of thoughts and other kinds of non-linguistic representations.

⁴ I shall pretend, for simplicity’s sake, that the temporal parameter is genuinely articulated in the thought *It’s raining*, but in fact it need not be. As Kaplan, 1989, p. 504, puts it, “‘It’s raining’ seems to be locationally as well as temporally and modally neutral’.

utterance of ‘It’s raining’ does not introduce any unarticulated spatial constituent; the place *is* articulated, at least in the form of a variable.⁵

I think that Stanley’s argument is best viewed against the background assumption that language is *modular*, at least to some extent. The modularity of language implies that predicates are lexically given independently of the cognitive context. Now I want to contrast linguistic modularity with cognitive flexibility. One of the most interesting claims of recent cognitive science is that concepts are very often constructed ‘on the fly’, depending on the current cognitive task. In addition to the ‘stable’ concepts that might be encoded by words, there are *ad hoc* or *occasional concepts*, namely temporary constructions in working memory. These cognitive constructions have been postulated in many areas of cognition (Sperber & Wilson, 1998; Barsalou, 1999; Carston, 2002; Prinz, 2002). Here is a recent statement of the context-sensitivity of concepts:

[W]e all have countless DOG concepts [...] The way one represents a dog depends on whether one is thinking about the arctic tundra or Central Park. The way one represents an elephant depends on whether one is at a circus, in a zoo, or on a safari (Prinz, 2002: 152-3).

If we take the idea of *ad hoc* concepts seriously (as I think we should), there are many concepts of rain depending on the cognitive context. Thus, even if the thought *Everywhere I go, it’s raining* involves a concept of rain which demands a spatial mode of presentation, the simpler thought *It’s raining* might well involve, in some contexts, a spatially neutral conception of rain.

Without exaggerating the gap between language and thought, we should be open to the possibility that a truth-conditionally relevant parameter is unarticulated at the semantic level while being articulated at the cognitive level, and vice-versa. The following tableau summarizes the four possible cases:

⁵ In Recanati’s (2002) terminology, the place is ‘weakly’ articulated.

	(a)	(b)	(c)	(d)
Level of sentence (linguistic meaning)	+	-	+	-
Level of thought (conceptual content)	+	+	-	-

In case (a), the relevant constituent is articulated both at the level of sentence and at the level of thought. This case covers utterances of ‘It is raining here’ and ‘It is raining in Paris’ when the place which is explicitly referred to is also singled out in thought. The existence of case (b) is more controversial. If we accept Recanati’s (2002) analysis of ‘It’s raining’, according to which it need not introduce anything more sophisticated than a one-place predicate ‘rain’, we can imagine a scenario in which the subject uses this sentence but articulates the place in her thought. This may happen if the place has been explicitly introduced earlier in the conversation, so that it is now obvious to the speaker and the hearer which place is in question. As an example of case (c), take a subject who uses a two-place predicate ‘rain’ true of times and places, but does not bother articulating the place in thought, perhaps because the current cognitive task does not require it. Finally, in case (d), a truth-conditionally relevant constituent is unarticulated both at the level of sentence and at the level of thought.

2. A dilemma

Still, the claim that there are cognitive unarticulated constituents is controversial. There is a fundamental *dilemma* that any friend of such constituents has to face. Either the alleged unarticulated constituent is *cognitively relevant*, or it is not. In the former case, it can be a constituent of what is represented, but it seems to be *articulated* in the subject’s cognitive life after all. So it looks as if the alleged unarticulated parameter must be cognitively irrelevant. However, in this case, it can no more be considered as a *constituent* of what is represented, for there is in principle a more accurate interpretation available.

Perry (2001, p. 46-7) draws a distinction, among cases where he says there is an unarticulated constituent, between those where ‘there is nothing insightful or innovative about articulating it’, and those where a conceptual innovation is called for. The former cases include ‘It is raining’ and ‘There are serving drinks at the local bar’, which can easily be

transformed into, say, ‘It is raining in Paris’ and ‘There are serving drinks at the bar in this neighborhood’. The first horn of the dilemma is doing its work here: since we all know that rain is a spatially located phenomenon and that something counts as local only relative to some reference location, the sense in which the thoughts expressed by these utterances are not fully articulated is at best unexplained.

In the other cases, the relevant constituent cannot easily be articulated save by using some general purpose phrase like ‘relative to’ or ‘according to’. However (and this is the second horn of the dilemma), I would say that at least some of these cases really do not involve unarticulated *constituents*. Consider the following examples, all discussed by Perry:

- (1) *These two flashes of light were simultaneous*, as thought by someone who has no idea of the theory of relativity.
- (2) *It’s two o’clock*, as thought by a young child who does not yet have the concept of a time-zone.
- (3) *It’s raining*, as thought by a Z-lander (Perry, 1993).

According to the theory of relativity, simultaneity has three argument roles: two events are simultaneous relative to an inertial frame. However, the folk notion of simultaneity does not involve any concept or mode of presentation of a frame. Does it follow that the frame is a cognitive unarticulated constituent? The answer depends on whether it is plausible to say that what is thought is made true, when it is true, by facts involving the triadic relation of simultaneity which the theory of relativity talks about. This is not very plausible for ordinary thinkers who have never heard of this theory. From the perspective of the theory of relativity, these thinkers have a naïve and confused view of physical reality. So strictly speaking, a thought like (1) does not record an instance of physical simultaneity, but (perhaps) an experienced temporal coincidence. Of course, an educated semanticist can give (1) truth-conditions that are *relative* to an inertial frame. This interpretation is literally incorrect, but harmless if the validity of the thinkers’ inferences and the success of their actions do not hinge on the identity of the underlying frame. In fact, they do not move, either in reality or in imagination, between frames.

Similarly, what is thought by the child does not have a particular time-zone as a cognitive *constituent*. When she eventually masters the concept of a time-zone, she can then

reinterpret her earlier thoughts about the time as being true or false relative to a particular time-zone. Still, her temporal thinking before the conceptual change showed no sensitivity to time-zones, and belonged to a more primitive way of responding to the world.

Consider finally the third case. Perry (1993) imagines a community of primitive thinkers, called ‘Z-landers’, who do not travel and do not have the conception of a particular region as opposed to another. In particular, they always conceive of rain as a monadic property of times. For them, it just rains or not (at a given time). Z-landers’ judgements about meteorological phenomena have a kind of primitiveness analogous to that of our ordinary judgements about simultaneity. We just don’t have the same official ontology of rain. Their concept *rain* is not a concept *of* particular spatial regions. So their thoughts *It’s raining* do not embody a conception of objective, re-identifiable places at all, but belong to a feature-placing mode of thinking in Strawson’s (1959) sense.

Thus, *pace* Perry and Recanati, the examples (1)-(3) do not introduce unarticulated constituents because in each case there is a better interpretation which makes the relevant utterances and thoughts completely articulated after all, although expressive of a more primitive ontology.

3. Inferential roles

The dilemma just presented can be strengthened by considering the connection between thought and inference. Something is explicitly represented in thought if there is a concept or mode of presentation of it. Now a thought is composed of as many concepts as it has *inferentially relevant aspects* (Crane, 1992). When something is explicitly represented, there will be inferences hinging on the identity of what is represented. For instance, the thought *Claire is upset* has at least two constituents (*Claire* and *_ is upset*) because it can participate in formal inferences such as the following, where these constituents figure separately in other thoughts:⁶

- (1) *Claire is upset. Claire is my sister. So my sister is upset.*

⁶ This is related to Evans’s (1982) Generality Constraint, about which see below (§4.3). I should allow that one can also talk of the constituents of *non-conceptual* representations, in the sense defined below, insofar as these representations can participate in proto-inferences or quasi-inferential transitions.

One can accept that there is an internal relation between thought and inference even though one does not believe that inferential role can be characterized independently of conceptual content. Perhaps inferential role flows from a more basic account of conceptual content. The point is rather that whatever notion is fundamental (perhaps both are), a thought is individuated by its role in inferences hinging on its conceptual constituents.

Conversely, if there are unarticulated constituents, they cannot be inferentially relevant. For instance, if the thought *It's raining* is only implicitly related to a particular place, it cannot participate in inferences hinging on the identity of that place. This may cast doubt on the existence of unarticulated constituents. How can there be room for a thought to have constituents which cannot play any role as middle terms in inferences?

4. Situated cognition

In my view, the claim that there are cognitive unarticulated constituents has a place in a more general framework. In this framework, there are no fully articulated thoughts because *all* mental representations are context-sensitive or situated.

As is well known, the corresponding claim at the level of language has been made by proponents of situation semantics. Consider the notion of Austinian proposition introduced by Jon Barwise and John Etchemendy (1997).⁷ The idea is that the truth of a linguistic representation is not arbitrated by the whole world, but by a portion of it called a 'situation'. In other words, any proposition has two semantic dimensions:

$$(1) \quad s \models \sigma$$

Here, σ is a linguistic representation of a state of affairs, and s is the situation (or context) relative to which σ is presented as true or false. A situation can be compared to a 'micro-universe' generating a set of facts holding within it.⁸ The representation is made true, when it is true, by some fact belonging to this set, rather than by the whole universe

⁷ The original inspiration is John L. Austin's 1950 essay 'Truth', reprinted in his (1971). See also Barwise and Perry, 1983, and Barwise, 1989. The notion of Austinian proposition and the study of its cognitive underpinnings have been more recently developed by Recanati, 1997, 2000. In this paper, I follow situation semanticists and indicate the relation of truth-making between a situation and an explicit representation by means of the semantic turnstile ' \models '.

⁸ Strictly speaking, a situation generates a set of facts only relative to a possible world. For details, see Recanati, 2000, §5.3.

considered as a Great Fact (if the latter notion makes sense at all). Here are two intuitive examples of Austinian propositions:

(2) The game I= Claire has the ace of hearts

(3) The room I= All the children are asleep

Suppose that I say ‘Claire has the ace of hearts’ while sitting at a particular poker table where Claire is not present. (For instance, I misidentified some player as Claire.) Intuitively, my statement is not made true by Claire having the ace of hearts in a card game across town. What I say is true or false relative to a particular poker table. Similarly, if I say ‘All the children are asleep’ while gently closing the door of a particular room, my statement is not falsified by the existence of awoken children elsewhere in the building. It is true relative to a specific situation, namely a particular room. In (2) and (3), the informal phrases ‘the game’ and ‘the room’ indicate that the representations ‘Claire has the ace of hearts’ and ‘All the children are asleep’ are true or false only relative to restricted parts of the world. The situations thus described contain facts about objects and events closely related to a particular game table and a particular room. As situation semanticists have observed, these facts may not be *persistent*: for instance, the fact that all the children are asleep, which holds within the relevant room, may not hold within a larger situation, say the building in which the room is located.

The guiding idea of situation semantics can be generalised, or rather transposed, to mental representations. Any such representation is situated, in the sense that it shares the Janus-faced appearance of an Austinian proposition. In general, there are two cognitive dimensions in entertaining a situated mental representation, corresponding to what is made explicit in the representation, and to what is left unarticulated. In what follows, I shall put forward three constraints on the formation of mental representations. To each of them correspond cognitive abilities or skills underlying situated representing. I shall first present these constraints in a somewhat abstract way and then give examples of how they work in particular cases.

4.1. The Anchoring Constraint

According to the first constraint, something is truth-conditionally relevant to a mental representation only if the subject is *cognitively anchored* to it. In other words, there is what I shall call ‘the Anchoring Constraint’ on grasping a given situated representation:

Anchoring Constraint: A mental representation is not related to its situation in a purely external or arbitrary manner, but by way of *cognitive facts* about the subject.

In general, it is not arbitrary which situation a given representation is related to. The notion of situated representation is not just a theoretical tool that a philosopher or a cognitive scientist can use to classify a subject’s mental states. The Anchoring Constraint goes a step further: if a situated representation is to have a psychological reality, there must be facts about the subject’s cognitive abilities which explain why she is immersed in a particular situation as opposed to another.

The Anchoring Constraint is admittedly quite abstract. It applies both to what is articulated or explicitly represented and to what is unarticulated or only implicitly represented. Consider for instance the thought *It’s raining in Paris*, and the situation to which it is related:⁹

(1) $s \models \text{It's raining in Paris}$

The situation s must include at least Paris, or more precisely facts about that city. So explicit content determines at least part of the relevant situation. The question is how the latter can also be implicitly determined. According to the Anchoring Constraint, a situation includes implicit yet truth-conditionally relevant aspects only if there are cognitive anchoring relations to them. The challenge is to explain how we can have something ‘in mind’ in this sense if it is not explicitly represented.

What I have argued in effect is that our ordinary thoughts about simultaneity do not meet the Anchoring Constraint with respect to inertial frames. When I think *These two flashes are simultaneous*, there are no cognitive facts anchoring me to an inertial frame. As a consequence, what I think is not true relative to such a frame. Similarly, the Z-lander’s

⁹ If you do not believe in partial situations at this stage, let s be the whole actual world.

thought *It's raining* is not implicitly related to a particular place because it is at best only externally related to that place.

4.2. The Constraint of Explicit Identification

When a given representation articulates something which was only implicit in another representation, I shall say that the former is *detached* relative to the latter. For instance, the thoughts *It's raining here* and *It's raining in Paris* are detached relative to the simpler thought *It's raining*, just as the thoughts *It's over now* and *It's over at 3 PM, 1 August 2002* are detached relative to the simpler thought *It's over*.¹⁰

I shall make the hypothesis that any case of detachment involves a *change of context*, more precisely an *expansion* of the original situation. Let us consider for instance the relationship between, on the one hand, *It's raining* and *It's over* and, on the other hand, the corresponding indexical thoughts:

- (1) $l \models \text{It's raining}$
- (2) $l' \subset l \models \text{It's raining here}$
- (3) $t \models \text{It's over}$
- (4) $t' \subset t \models \text{It's over now}$

Let us suppose that l is the local place (for instance Paris), and t is the present time (the time of the thought). What about l' and t' , the situations to which *It's raining here* and *It's over now* are related? On the hypothesis under consideration, if the identities of l' and t' depend on the context of the thinking, it is true *a priori* that l' and t' are more encompassing than l and t . More precisely, l' contains the local place, but also other distinguishable places, just as t' contains the present time, but also other distinguishable times.

¹⁰ I call 'detachment' the move from a given representation to one which articulates some of its implicit aspects, and 'immersion' the converse operation. This is related to the notions of projection and reflection in Recanati, 2000, p. 65-8. Immersion and detachment are distinctive moments of the *cognitive dynamics* of situated representations; see Recanati, 1997.

Evans (1982, p. 153-4) pointed out that any spatio-temporal thought belongs to a *system* of thoughts about places and times. The indexical expression ‘here’, for instance, can refer to a particular location in the perceptual field *as opposed* to other locations in that field (and eventually to locations not currently perceived). More generally, explicit reference always takes place in a conceptual space of objects among which is the referent. In a similar vein, Recanati writes:

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. If no other location was implicitly considered, the specification of the location would play no role and could be omitted. The fact that the location is singled out shows that the situation with respect to which the locationally specific representation is interpreted includes the mentioned location *and others from the same paradigm* (1997, p. 54-55).

What Recanati says here about ‘In Paris, it’s raining’ can be said of ‘It’s raining here’ and the thoughts typically expressed by the latter sentence. The indexical thought *It’s raining here*, just as the less indexical thought *It’s raining in Paris*, introduces a contrast between the referred location and *other*, real or virtual locations.

One can then introduce a second constraint on grasping a situated representation, and correspondingly on moving from a given representation to a more detached one:

Constraint of Contrastive Identification: The articulation of an implicit situational aspect of a representation requires its explicit identification, which in turn involves the cognitive capacity to *contrast* this aspect with others of the same kind.

The explicit representation of an object or a property requires the capacity to differentiate in thought that object or property from other objects or properties, either real or virtual. As Evans (1982, p. 106) puts the point, ‘an Idea of an object is part of the conception of a world of such objects, distinguished from one another in certain fundamental ways’. The Constraint of Contrastive Identification thus implies a form of *holism* of explicit

representation: normally, one cannot have a mode of presentation of something without having other modes of presentation of contrasting things.¹¹

4.3. The Detachment Constraint

Some cognitive systems (or sub-systems) produce immersed representations without being able to produce in addition the corresponding detached representations.¹² As we shall see, perception is a case in point: it produces representations so to speak from a fixed point of view. My hypothesis is that the inability to achieve detachment is characteristic of a *non-conceptual* mode of representation.¹³ For intuitively, conceptual thinking seems always capable of making explicit any aspect of the situation to which a given thought is related. Let us call this the Detachment Constraint on conceptual representations:

The Detachment Constraint: A system of representations produces *conceptual* representations only if any implicit aspect of a situation can be made explicit, at least in principle, within the same system.

The Detachment Constraint does not imply that one can make all of one's thoughts fully explicit at a given time. This would give rise to a non-situated or maximal representation, which goes against the spirit of situation theory. However, it seems possible, at least in principle, to make explicit any implicit aspect of a given thought at some time. The Detachment Constraint has a normative import; its satisfaction implies the existence of a system of conceptual representations capable of producing, for any implicit aspect of a given situated representation, other representations articulating that aspect.

The Detachment Constraint can be usefully contrasted with Evans's (1982) Generality Constraint, which has also been put forward as a constraint on conceptual thinking. Roughly, the subject who is able to think that *a* is F must be able to think that *b* is F and that *a* is G, if she possesses the mode of presentation *b* and the concept $_ G$. In other words, a conceptual

¹¹ More precisely, what is at stake are forms of *local holism* in Peacocke's (1992) sense.

¹² A system (or sub-system) of representations is defined here as a cognitive structure which has the dual function of producing and consuming representations (see Millikan, 1993, Ch. 4). For instance, the belief system produces conceptual representations which the subject holds true, while perception is best seen as involving several sub-systems of representations, depending on what can be made explicit at the various levels of perceptual processing.

¹³ In the present terminology, 'conceptual' qualifies primarily *systems* of representations, and only derivatively the *contents* of the corresponding representations.

representation has constituents which can re-combine and figure separately in other representations. From the point of view of situation theory, the two constraints are complementary. The Generality Constraint operates *within* a situation, whereas the Detachment Constraint operates *across* situations. When a system of representation satisfies both constraints, it is at least a good candidate for being a system which produces representations with conceptual contents.

5. Placing features

Perry insightfully points out that ‘there is a little of the Z-lander in the most well-travelled of us’ (1993, p. 216). In other words, there are circumstances in which I think and act *as if* I were a Z-lander: I look out the window, judge *It’s raining*, want to stay dry, believe that if I deploy my umbrella over my head, I will stay dry, and eventually deploy my umbrella. In this mode of practical reasoning, the question of which particular place is in question is *never* raised. The inferences involving the thought *It’s raining* do not hinge on the identity of a particular place. This kind of cognitive task does not involve anything more sophisticated than a one-place concept of rain, true of times.

Similar considerations apply to the temporal counterparts of thoughts like *It’s raining*. As Prior (1976) emphasised, there are contexts in which the thought *It’s over*, formed in referring to some painful event I have just gone through, immediately modifies my action tendencies and makes me feel relief. In these contexts, *It’s over* is a temporary construction which does not involve a temporal mode of presentation.

Thoughts like *It’s raining* and *It’s over* belong to a mode of perceiving, thinking and acting on the world which is relatively *neutral* from a spatio-temporal point of view. In that mode, I can acquire information that some property is instantiated, but I cannot acquire the information that it is instantiated in my perceptual field *considered as a particular place among others*. In order to make sense of the latter information, I have to impose on my perception a cognitive map which contrasts the local place with other places, not currently perceived. Similarly, I can acquire perceptual information that some event is completed, but I cannot acquire the information that it happened *at a particular time*. In order to make sense of the latter information, I normally invoke a linear conception of time which contrasts the present time with other times. The uses of a cognitive map and a linear conception of time

involve more sophisticated thoughts like *It's raining here* and *It's over now*, which are explicitly about particular places and times.

The fact that I use *ad hoc* representations such as *It's raining* and *It's over* does not mean that I adhere to Z-landers' ontology of rain, or that I indulge in a doubtful temporal ontology in which being over is an absolute property of events. My use of such representations is restricted to particular situations, in which the source of perception is roughly the same as the target of action. For instance, I would not go into the described inferential transitions if I believed that the place of perception has become significantly different from the place of action. In contrast, Z-landers would make the same judgements if they were nomads, unknowingly changing places. Similarly, even though my thought *It's over* is not explicitly about the present time, the fact is that I use it only for an instant. In particular, it is never stored in that form in long-term memory for later use.¹⁴

When such *ad hoc* representations are used, two cognitive dimensions can be distinguished. First, the representations have inferential roles characteristic of a feature-placing (spatial or temporal) mode of thinking. Second, these inferential roles are constrained by the subject to apply in specific contexts. My suggestion is that the first dimension (inferential role) determines the thoughts' explicit contents, while the second dimension (controlled exercise of inferential role) makes the subject implicitly related to particular places and times. The Anchoring Constraint is satisfied with respect to the latter because there is a sensitivity on the subject's part to relevant contextual changes.

Note that such sensitivity is not based on an explicit representation of the relevant unarticulated constituent. I can be sensitive to a change of spatial context without thinking about any place in particular. Similarly, I can control my disposition to act on the thought *It's over* in such a way that only inferences which do not take too much time are actually drawn. It does not follow that I deploy a concept of a particular time. This point is important if (as Strawson suggested in *Individuals*) we want thoughts like *It's raining* to provide a basis for the introduction of more sophisticated thoughts, like *It's raining here*.

¹⁴ *Ad hoc* representations like *It's raining* and *It's over* might be derived from more stable ones by cancelling some cognitive features of the latter. For instance, the concept *rain*¹, true of times only, might be derived from the stable concept *rain*², true of times and places, by (temporarily) silencing our ability to distinguish one rain event from another (at a given time), leaving only our ability to distinguish rain from non-rain. See Carston, 2002, Ch. 5, for a description of other possible mechanisms underlying the construction of *ad hoc* concepts.

6. Stipulating situations

On the foregoing account of Perry-like scenarios, the relevant thoughts are anchored to their situations via non-representational capacities of keeping track of our own movements in space or the passage of time. However, there are more sophisticated cases in which the situation is not given but *stipulated*.

Consider the thought *At Lake Constance, it's raining*. On the traditional analysis, the concept *rain* calls for a spatial mode of presentation, which here determines Lake Constance. Following Karl Bühler, Recanati argues on the contrary that when one entertains a representation like 'At Lake Constance, it's raining', 'one simulatively entertains a representation decoupled from the egocentric situation' (2000, p. 162) in such a way that Lake Constance is '*presentified* through an act of the imagination' (2000, §6.5). So *within the context of simulation*, only a spatially neutral concept of rain is involved – the same as in the self-standing thought *It's raining*.

The difference between the two analyses is not obvious when a single representation is concerned. However, the merit of the second analysis emerges when we turn to more complex cases. Consider the following chain of thoughts:¹⁵

- (1) *I've just had news from my friend in Constance. It's raining heavily, so the streets are slippery. Everybody has to be very careful driving.*

The first thought in the chain explicitly introduces the anchor to which the rest of the reasoning is attached. The thoughts *It's raining heavily*, *The streets are slippery* and *Everybody has to be very careful driving* are then all true relative to Constance. Intuitively, it would be redundant, from a cognitive point of view, to articulate the reference to Constance at each step in the inference process, as in (2):

- (2) *It's raining heavily in Constance, so the streets of Constance are slippery. Everybody in Constance has to be very careful driving.*

The question is how to spell out this intuitive argument in favour of the existence of situated reasoning such as (1).

¹⁵ This is a variation on Recanati's example 'Berkeley is a nice place. There are bookstores and coffee shops everywhere' (2000, p. 67).

Consider first the thought *It's raining heavily* as it occurs in (1). Just as in the simpler Perry-like scenarios, two cognitive dimensions can be distinguished in its grasping. First, it has the inferential role of a feature-placing thought. Second, I am nevertheless not ready to draw all the inferences that would be licensed by a genuine feature-placing thought. I restrict my reasoning to selected ways of establishing the thought, and ways of drawing consequences from it. For instance, as my simulation of Constance is decoupled from actual perception and action, my current experience of rain, say in Paris, does not establish the truth of *It's raining*, just as the latter does not lead to my opening an umbrella where I am. In fact, since the situation is stipulated to be Constance, my reasoning does not have to be sensitive to actual changes in my spatial relation to Constance, whatever it is.

Within the context of my simulation of Constance, the move from *It's raining heavily* to *The streets are slippery* makes perfectly good sense given the inferential role of the premise. As contrasts between Constance and other cities cannot be drawn within such a simulation, there is no question as to whether the place where it is raining is the same as the place where the relevant streets are. In general, it may be cognitively more manageable to cope with a partial situation rather than with the whole world when the difference between them is irrelevant to the success of one's theoretical and practical projects. For instance, in a Perry-like scenario, the thought *It's raining* can be directly geared to local rain-protecting action because the success of the latter does not depend on the weather elsewhere in the world.

There is some analogy to be made here with logical reasoning with arbitrary objects (cf. Fine, 1985). When I reason with an arbitrary object, I have to make sure that the latter is representative of the domain of quantification. In other words, I have to control my reasoning so that it does not trade on special assumptions about the object. I can introduce the universal quantifier only if the difference between the arbitrary object and the other objects in the domain is irrelevant to the validity of my argument.

Of course, in the absence of a substantial theory of cognitive effort, the foregoing remarks remain speculative. There is an *a priori* requirement on the possibility of situated reasoning such as (1), which is that the cognitive *cost* of monitoring the inferences in (1) should be *below* that of the corresponding detached reasoning in (2), which articulates the reference to Constance at each step of the inferential process. Indeed, if each step in the inferential process in (1) were directly monitored by a full representation of the relevant situation, namely Constance, the difference between (1) and (2) would collapse. The fact that this requirement is met may be difficult to establish in particular cases, for unlike logical

reasoning with arbitrary objects, there are often no strict rules saying which inferences may be drawn and which should be inhibited.

In the case of (1), the move from *It's raining heavily* to *The streets are slippery*, as well as the move from the latter to *Everybody has to be very careful driving*, are licensed only if the following dispositional condition is met: if I were to produce the detached versions of these thoughts, they could be organised as a piece of reasoning about Constance, like in (2). In other words, one can make such moves because one is disposed to detach the thoughts in the same way, i.e., to consider them as being implicitly related to the *same* constituent. Perhaps the establishment of such a dispositional connection requires less cognitive effort than explicit articulation of Constance at each step in the chain of thoughts.

As a different illustration, consider the last thought in (1), *Everybody in Constance has to be very careful driving*. One could claim that two cognitive dimensions can be distinguished in the grasping of the quantified concept *everybody*. First, this concept is associated with the usual introduction and elimination rules. It has the inferential role of an absolute universal quantifier. Second, the application of these rules is monitored in a specific way. The move from *Everybody is F* to *a is F* is made only if *a* belongs to the paradigm defining the situation, and the move from *a is F* to *Everybody is F* is made only if *a* is representative of the objects in this paradigm. However, it is not clear that such inferential monitoring is more economical, from a cognitive point of view, than reasoning with a detached version of the thought, such as the last thought in (2), in which the domain of quantification is explicitly restricted.

Perhaps things are different if *everybody* is taken seriously as an *ad hoc* concept, just as the concept *rain* in *It's raining*. Suppose for instance that *a* refers to somebody outside Constance at the relevant time. Then the inference from *Everybody is F* to *a is F* cannot be drawn within my simulation of Constance. However, the reason why it cannot be drawn is not that I have explicitly made the consideration that *a* does not belong to the paradigm defining the situation. Rather, the inference cannot be drawn because the thought *a is F* cannot even be *grasped within the simulation*. The cognitive resources deployed within the simulation can at best identify a person *as opposed to others in the paradigmatic set*. If one adds to the simulation a concept of a new person, additional cognitive resources are necessary because new contrasts become possible. This might be why it can be more economical to fix a situation once for a whole simulation project rather than to make it explicit at each step of the inference process.

7. Egocentric perception

I would now like to turn to cases in which an unarticulated constituent is relevant to a whole mode or system of representation. For instance, at some (egocentric) level of representation, the perceptual system can produce the following visual representation:

(1) $s = \text{my point of view} \models \textit{This is to the left}$

That is, I visually perceive an object as being to the left. My visual experience is perspectival in the sense that it represents this fact from a particular point of view, viz. mine, which is left unarticulated.¹⁶ Now the representation *This is to the left* is anchored to a point of view by virtue of architectural relations between sensory input and motor output. I am unable to *monitor* these relations; they are simply imposed on me. (As McDowell, 1994 would say, perception, unlike judgement, is *passive*.) It follows that all *perceptual* representations will be relative to a fixed point of view. Perception is a necessarily immersed mode of representation.

As a further consequence, perception does not meet the Detachment Constraint. Take for instance the question of whether the perceptual system is able to move from (1) to a more detached representation in which my point of view is contrasted with other (real or virtual) points of view:

(2) $s' \subset s \models \textit{This is to the left relative to my point of view}$

A philosopher who gives a negative answer to this question might stress that my point of view is not an element which is itself visually represented (just as in Wittgenstein's famous analogy in the *Tractatus*, the geometrical eye is not located in the visual field).¹⁷ So the representation (2) cannot be produced by the perceptual system; at least, it does not belong to the same system of representations as (1).

In other words, there seems to be an important difference between the perceptual system and, say, the *belief* system. The belief system satisfies the Detachment Constraint

¹⁶ In (1), *to the left* functions as an *indexical concept*; it can refer to different directions even when the point of view is held constant. In contrast, the thought *It's raining* cannot refer to different places without changing its situation. Nevertheless, *to the left* is *more* than just an indexical concept. It locates something within a *system of coordinates* or a *frame of reference* which is in fact centred on the subject. For remarks about the crucial difference between *to the left* and *to the left relative to* (or *to the left of*), cf. Campbell, 1994, p. 119, Eilan, 1995, and Brewer, 1999, p. 193-4.

¹⁷ See Wittgenstein, 1961, §5.641.

because it can produce detached versions of any unarticulated representation. For instance, the move from *It's raining* to *It's raining here* or *It's raining in Paris* can be made within the belief system. In contrast, the perceptual system violates the Detachment Constraint because at that level of representation, contents too much depend on the mode or attitude with which they are formed. Thus, the contents of beliefs are *conceptual*, whereas the contents of perception are *non-conceptual*.

Of course, one might dispute the claim that (2) cannot be produced by the perceptual system. It is plausible to suppose, after all, that there is a conscious level of experience at which perception and imagination are so intertwined that the subject can in some sense perceive that the same sensory object has different appearances from different (real or imaginary) points of view. This requires some integration of, and thus some contrast between, points of view.¹⁸

One way of clarifying the issues here is to distinguish between different *levels* of perceptual representation. At the most basic levels, perceptual representations are produced from a single unarticulated point of view. At higher levels, where perception and imagination are intertwined, actual and possible points of view can be integrated. Still, there is no level of *perceptual* representation which involves contrasts between perceptible and non-perceptible objects. Once again, such contrasts require a kind of detachment that is unavailable at the perceptual level. For example, the situation *s'* in (2) is just a set of points of view, one of which is the subject's actual one. The representation of, say, a microscopic object requires the subject to step out of purely perceptual situations.

Even at higher levels, where some detachment from the actual egocentric perspective is possible, perception yields only proto-objectual representations, more specifically representations of *sensory* objects. Nevertheless, perceptual representations are anchored to a physical world of objects. This is why perception can ground demonstrative judgements like *This is a table*. These judgements require a more sophisticated kind of detachment, which allows contrasts between perceptible objects and other kinds of objects.

The account just sketched implies that any judgement of perception involves some detachment from the grounding perceptual experience. Indeed, on this account, detachment is an ubiquitous operation in one's cognitive life. It does not follow that such detachment is meta-representational, that the subject must always represent explicitly the mode of experience as such. For instance, the transition from the perception of a particular cup full of

¹⁸ See Brewer, 1999.

coffee to the judgement that this is a cup full of coffee is not meta-representational.¹⁹ On the present account, it should still be conceived as leading its subject from an immersed, primitive mode of representing the world, as being populated by sensory objects, to more detached representations with conceptual contents, about objects that have physical properties and that can exist unperceived.

8. Nonpersistence

In this final section, I would like to briefly discuss an important objection against the claim that all mental representations are situated. On the present version of situation theory, the thoughts *It's raining* and *It's raining in Paris* can be specified using the following notation:

- (1) My local environment $I = \textit{It's raining}$
- (2) European cities $I = \textit{It's raining in Paris}$

According to the objection, this notation is misleading. While my local environment may be an unarticulated constituent of *It's raining*, there is no sense in which the set of European cities is an unarticulated constituent of *It's raining in Paris*. In other words, while the truth of *It's raining* is relative to my local environment, the truth of *It's raining in Paris* is not relative to the set of European cities. In particular, there is no *semantic* difference between (2) and (3), which have exactly the same truth-conditions:

- (3) Cities of the world \subset European cities $I = \textit{It's raining in Paris}$

¹⁹ However, there is an analogy between the epistemology of detachment and that of the transitions from the judgement that p to the meta-representational judgement that I believe that p . In both cases, the subject must be sensitive to functional properties of the initial thoughts other than those determining their explicit contents. For remarks about the latter type of transitions, which apply *mutatis mutandis* to the present case, see Peacocke, 1999.

In contrast to (1), the situation of (2) cannot change in a way which affects the truth-conditions of *It's raining in Paris*. As a consequence, the reference to a partial situation seems to be redundant; it makes no difference if we evaluate (2) with respect to the whole universe.²⁰

Although this objection may have some validity at the level of language, it misses its target as far as mental representations are concerned. For it neglects the crucial fact that the representations (1)-(3) are, from a cognitive point of view, *ad hoc* representations; they articulate just what is needed for the relevant cognitive project. If the cognitive project is to think about the weather in Europe, then the subject will exploit whatever cognitive resources are necessary to establish contrasts between various European cities. On the other hand, if what is at stake is the weather on planet Earth, then more sophisticated resources will be called for, for the resources needed to identify Paris among (selected) European cities will probably be insufficient to identify it among a larger set of cities. In general, there is no guarantee that the representation (2) will be cognitively equivalent to the representation (3); most probably, the latter will be more sophisticated than the former.

In the present framework, there is no difference *in kind* between the transition from (1) to (2) and the transition from (2) to (3). Both transitions articulate something that was only implicit in (1) and (2), which makes (2) a detached representation relative to (1), and (3) a detached representation relative to both (1) and (2). (2) makes explicit the reference to the local place, which was only implicit in (2), and (3) makes possible a contrast between European and non-European cities, to which (2) was blind. Indeed, in (2), the cognitive resources that would be needed to represent European cities *as such* are simply not required for the relevant cognitive project. It follows that the very same name we have used in (2) and (3), viz. 'Paris', corresponds in fact to *different* modes of presentation of the city Paris. If this is a notational defect, it should not be exaggerated, for the fact that 'Paris' does not express the same mode of presentation in (2) and (3) is suggested by the fact that the italicised representations are related to different situations, which the notation allows us to explicitly indicate.

Nonpersistence is often invoked as an intuitive argument in favour of partial situations. As we already observed, the truth of 'All the children are asleep', uttered in a situation where a particular room is in question, is not persistent: the same linguistic representation may not be true relative to a larger situation, say the building in which the room is located. The argument is not entirely convincing, for many linguistic representations

²⁰ Thanks to Tim Williamson, whose questions on a previous draft of this paper helped me voicing this objection.

seem to be persistent; for instance, if ‘It’s raining in Paris’ is true relative to a situation s , it remains true relative to any situation which includes s . The sense in which ‘It’s raining in Paris’ is a situated linguistic representation cannot be explained by mere considerations of nonpersistence.

In contrast, nonpersistence is a pervasive phenomenon in the sphere of mental representations. Suppose that the thought *It’s raining* is true relative to my local environment. It does not follow that it is true relative to a more encompassing situation, at least if the truth of *It’s raining* requires a substantial amount of rain distributed in the relevant situation. Similarly, and perhaps more controversially, the truth of the thought *It’s raining in Paris*, formed in a situation involving only European cities, is not persistent. Of course, the detached version of this thought, namely (3), will be true if and only if the original thought, namely (2), is true. As we have seen, though, (3) does not involve the same articulated content as (2). So the truth-conditional equivalence between (2) and (3) does not mean that the truth of (2) is persistent. In fact, the truth of (2) is not persistent because there is no guarantee that *its articulated content* will be verified in a larger situation. To begin with, there is no guarantee that the mode of presentation *Paris* in (2) will pin down Paris if we export it from (2) and force its evaluation with respect to the situation of (3).

Finally, consider the thought *Claire has the ace of hearts*, formed in a situation s in which a particular poker table is in question. Here, facts about Claire must be part of s ; otherwise the subject immersed in s would not be able to think explicitly about her. The situation is still partial, though, because it does not include facts about other poker tables. The subject temporarily reasons in such a way that contrasts between the relevant poker table and other poker tables cannot be drawn. So the thought is false (or undefined), because it is not true that Claire is sitting at the poker table with the ace of hearts in her hand. In this case too the thought is not persistent, but *not* because it would be true if one included in s the other poker table, across town, where Claire *has* the ace of hearts. Rather, there is nonpersistence because there is no guarantee that the articulated content *Claire has the ace of hearts* as formed in the original situation will identify the same state of affairs (or for that matter any state of affairs) as applied to the larger situation.

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