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# The dynamics of situations

François Recanati  
CREA, CNRS/Ecole Polytechnique  
1 rue Descartes, 75005 Paris, France  
*recanati@poly.polytechnique.fr*

## *Summary:*

1. Retaining content through context change
2. Austinian semantics
3.  $\delta$ -structures
4. Projection
5. Projection from meta-representations
6. Situations and cognitive content
7. Conclusion

## §1. Retaining content through context change

### 1.1 *Cognitive dynamics*

If someone wants to say the same today as he expressed yesterday using the word 'today', he must replace this word with 'yesterday'. Although the thought is the same its verbal expression must be different so that the sense, which would otherwise be affected by the differing times of utterance, is readjusted. [Frege, *The Thought*]

In this well-known passage Frege draws a consequence from the context-sensitivity of natural language sentences. Since the same sentence, with the same linguistic meaning, can express different propositions in different contexts, we may have to use a different sentence with a different linguistic meaning if we want to express the same proposition in a changed context.

As Perry and Kaplan emphasized, the language of thought behaves similarly: in order to *think* the same thing today which I thought yesterday using the mental word 'today', I must replace this word with 'yesterday'. This raises the problem of *cognitive dynamics*. In order to retain an attitude (e.g. belief) toward a certain content one may have to change the sentence through which that content is apprehended. It follows that retaining a belief cannot be equated with keeping the same sentence in one's belief box. Yet retaining the belief is not *merely* a matter of accepting, at  $t'$ , a sentence  $s'$  expressing the same content which was expressed by the sentence  $s$  accepted at  $t$ ; for one may fail to realize that  $s$  and  $s'$  express the same content. Kaplan gives the following example:

I first think "His pants are on fire". I later realize "I am he" and thus come to think "My pants are on fire." Still later, I decide that I was wrong in thinking "I am he" and conclude "His pants were on fire". If, in

fact, I *am* he, have I *retained* my belief that my pants are on fire simply because I believe the same content, though under a different character? [Kaplan 1989: 537n.]

The obvious answer to this rhetorical question is 'No'. To retain a belief it is not sufficient to accept a sentence *s'* expressing the same content as the previously accepted sentence. There must be some special relation between the new sentence and the old one — a special relation which it is the business of the theory of cognitive dynamics to investigate.

What I want to do in this paper is less to further the study of cognitive dynamics than to broaden its scope. I want to consider a new dimension of contextual change, and the specific form of retention of content that goes along with it.

### *1.2 Horizontal and vertical interpreting*

To 'retain' the content of a speech or thought episode even though the context changes, we must find a sentence expressing the same content in the new context. This can be done in two ways. In Frege's example, 'today' is replaced by 'yesterday'; but it could also be replaced by an explicit date (e.g 'Wednesday' or 'the tenth of March'). Using the second method we make the sentence less context-dependent in order to free it from the contingencies of the original context. Using the first method we keep the degree of context-sensitivity constant but we compensate for the change in context by a complementary linguistic change: we 'adjust' indexicals.

The second method (substituting names or dates for indexicals) corresponds to Perry's notion of 'interpreting up' while the first method (shifting indexicals) corresponds to his 'lateral interpreting':

To interpret a sentence heard or read or otherwise apprehended is to find a sentence with the same interpretation in one's own situation, as the apprehended sentence had in the utterance of origin.

We can distinguish several kinds of interpreting.

*Interpreting up.* This is to find an interpreting sentence with a less sensitive meaning. My friend in San Francisco sends me a card on which he has written, 'This city has dilapidated cable cars.' I write in the draft of my travel-guide: 'San Francisco has dilapidated cable cars.' Note that the sentence I find is not insensitive. It has a tense and a proper name. But it is less sensitive than the sentence I read on the card; it has a constant or near-constant interpretation over a wider range of change in the context.

*Interpreting down.* This is to find a more sensitive sentence with the same interpretation. On a trip to San Francisco I read in my Mobil-Guide, 'San Francisco has dilapidated cable cars'. I write on my notepad, 'This city has dilapidated cable cars.' Or I think it. But I do not get on the cable cars I see.

*Lateral interpreting.* This is to find a sensitive sentence to interpret a sensitive sentence. My friend shouts, 'You are about to be hit by a rock.' I think, 'I am about to be hit by a rock'. [Perry 1986a: 352]

Let us simplify the terminology and talk of 'vertical interpreting' when what is affected is the degree of context-sensitivity of the accepted sentence. Interpreting up and down are two instances of vertical interpreting. In contrast, lateral (or horizontal) interpreting is the sort of thing Frege talks about: we go from 'You are about to be hit' to 'I am about to be hit' or from 'It's a lovely day today' to 'It was a lovely day yesterday'.

### 1.3 *Vertical interpreting and contextual change*

Horizontal interpreting essentially involves a change of context. It is because the context changes that we have to adjust the expression in order to maintain the content fixed. The linguistic change compensates for that contextual change, and is justified only insofar as the latter occurs. I will

say that a linguistic change is of the 'compensatory' variety whenever the following conditions are satisfied:

- (i) Had the accepted sentence been left unchanged, the change of context would have caused a change in the expressed content.
- (ii) Had the context been left unchanged, the change in the accepted sentence would have caused a change in the expressed content.

It is easy to check that the two conditions are satisfied in Frege's example. The original sentence 'Today is F' was appropriate to the context in which it was tokened (viz. Wednesday); but in a different context (viz. the next day) the same sentence would express a different content. To maintain the content fixed, the sentence has to be changed. Condition (i), therefore, is satisfied. The second condition also is satisfied: the changed sentence 'Yesterday was F' is appropriate to the new context (one day later); but if it had been tokened in the original context (Wednesday) the expressed content would have been different.

With vertical interpreting, the situation is rather different, or so it seems. Traditionally, vertical interpreting is not considered as involving a change of context at all, but merely a change of wording. What follows is a *prima facie* argument in behalf of the traditional picture.

In a given context, a given content can be expressed in two manners: either in a context-sensitive manner or in a context-insensitive manner. Vertical interpreting is merely the transition from one manner of expression to the other. Thus I can think 'Today is F', realize that today is Wednesday, and infer 'Wednesday is F'. The context remains what it was: the day of utterance is unchanged, in contrast to what happens in Frege's example (the shift from 'today' to 'yesterday'). This shows that vertical interpreting can take place in the *absence* of contextual change — in such a way that the first condition above does not apply.

Vertical interpreting can also take place as a result of context change, as I pointed out earlier: to express on Thursday the same content that was expressed by 'today is F' on Wednesday, I may opt for the vertical method and refer to the previous day as 'Wednesday'. Even in that case, however, the linguistic change is not compensatory; for the second condition stated above is not satisfied. Had the context been left unchanged, the change in the accepted sentence would *not* have caused a change in the expressed content. For 'interpreting up' is a linguistic change which maintains content fixed *whether or not a change of context occurs*.

This argument supports the claim that, in contrast to horizontal interpreting, vertical interpreting is de-coupled from contextual change. Yet I believe that it is not: vertical interpreting, in the framework I will set up, does involve a change of context.<sup>1</sup> This conclusion is welcome, for it facilitates theoretical unification. Vertical interpreting has many characteristics in common with horizontal interpreting, and it poses much the same problems. In particular it raises the problem of cognitive dynamics. Thus we have no trouble constructing a counterpart to Kaplan's example involving vertical rather than horizontal interpreting:

I first think 'Today is F'. I later realize 'Today is Wednesday' and thus come to think 'Wednesday is F.' Still later, I decide that I was wrong in thinking 'Today is Wednesday' and conclude 'Today is F'. If, in fact, today *is* Wednesday, have I *retained* my belief that Wednesday is F simply because I believe the same content, though under a different character?

#### 1.4 *Basic vertical interpreting*

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<sup>1</sup> Evidence for that claim will be offered only with respect to *basic* vertical interpreting — the specific topic of this paper.

There are two forms of vertical interpreting, illustrated by the following pieces of reasoning:

(1)

This city has dilapidated cable cars  
 This city = San Francisco  
*Ergo*: San Francisco has dilapidated cable cars

(2)

It's raining  
 This is Paris  
*Ergo*: it's raining in Paris

(1) is Perry's example of 'interpreting up'. (2) is a different type of example, which I will focus on in this paper. It illustrates what I call 'basic vertical interpreting'.

In both cases, we start with a context-sensitive sentence: 'It's raining', or 'This city has dilapidated cable cars'. The sentence is context-sensitive because a constituent of the proposition which it expresses is determined by the context. 'This city has dilapidated cable cars', uttered in San Francisco (in the circumstances imagined by Perry), is true if and only if San Francisco has dilapidated cable cars. San Francisco is a constituent of content determined by the context. In the same way, when, at place  $p$ , I look out the window and say 'It's raining', what I say is true if and only if it's raining at  $p$ . In both (1) and (2), the contextual component of content comes to be objectively designated in the conclusion.

The difference between (1) and (2) lies in the manner in which the content of the original sentence depends on the context. In (1), before getting to be objectively designated (in the conclusion), the contextual component of content is already 'articulated', by means of the indexical phrase 'this city'. That phrase *stands for* San Francisco. It does so by virtue



of two factors: (i) a linguistic factor — the meaning of the phrase 'this city'; and (ii) a contextual factor — the city which the speaker manifests the intention to demonstrate. But in (2), the context-dependent constituent of content is *not articulated at all*. It is determined by the contextual factor alone.

The notion of an unarticulated constituent is presented in this passage from Perry:

It is a rainy Saturday morning in Palo Alto. I have plans for tennis. But my younger son looks out the window and says, 'It is raining.' I go back to sleep.

What my son said was true, because it was raining in Palo Alto. There were all sorts of places where it wasn't raining: it doesn't just rain or not, it rains in some places while not raining in others. In order to assign a truth-value to my son's statement, as I just did, I needed a place. But no component of his statement stood for a place. The verb 'raining' supplied the relation *rains* ( $t, p$ ) — a dyadic relation between times and places, as we have just noted. The tensed auxiliary 'is' supplies a time, the time at which the statement was made. 'It' doesn't supply anything, but is just syntactic filler. So Palo Alto is a constituent of the content of my son's remark, which no component of his statement designate; it is an *unarticulated* constituent. [Perry 1986*b*: 206]

Perry claims, correctly, that there is a difference between 'It's raining' and 'It's raining here'. The content is the same: both utterances are true if and only if it's raining in Palo Alto. In both cases, Palo Alto is a contextual constituent of content. But that constituent is determined *purely contextually* in one case, *partly* contextually in the other case.<sup>2</sup>

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<sup>2</sup> Arguably, there is a continuum between pure indexicality and unarticulated constituency. Demonstratives fall in between. The meaning of a demonstrative can be very poor (as in 'he' or 'that man'); at least it does not determine the referent, which depends upon the intentions manifested by the speaker. That is quite different from 'I',

In the same paper (p. 218), Perry makes a further claim: that 'It's raining here' is *intermediate* between 'It's raining' and 'It's raining in Paris'. To go from 'It's raining' to 'It's raining in Paris', we must first convert 'It's raining' into the indexical thought 'It's raining here'. Entertaining the indexical thought 'It's raining here' (in contrast to the pure contextual thought 'It's raining') already involves reflecting on the relevant aspect of the context (the place where we are) and making it explicit in the representation itself. If Perry is right the transition represented in (2) comprises four steps rather than three:

- (a) It's raining
- (b) It's raining here
- (c) here = Paris
- (d) *Ergo*: It's raining in Paris

In (a) the place is a purely contextual constituent of content. In (b) that constituent is reflected on and thought about in an egocentric manner. Then the 'bridging thought' (c) occurs, and the egocentric file is linked to an encyclopedic one. The conclusion (d) is an encyclopedic thought.<sup>3</sup>

The step from from (b) to (d) is an instance of the transition represented in (1). The transition represented in (2) therefore is more complex than and *contains* the transition illustrated by (1). But it contains something else as well: a more basic transition from unarticulatedness to articulatedness (i.e., the transition from (a) to (b)).

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where there is a rule whose application does not have to be licensed by the speaker's intentions. That is also different from unarticulated constituency cases, where communicative intentions do all the job.

<sup>3</sup> I am using the terminology of Recanati 1993.

The claim that indexicality mediates between unarticulated constituency and objective designation is not specifically Perry's; it has been made by various authors such as e.g. Sechehaye (1926) or Lyons (1975). Whether or not they are right, I think we cannot but acknowledge that the transition in (2) involves a basic step which (1) does not involve: the step from unarticulatedness to articulatedness. Transitions involving that basic step (or its converse: the step from articulatedness to unarticulatedness) are instances of what I call 'basic vertical interpreting' — the process which I am going to study in this paper.

## §2. Austinian semantics

### 2.1 *Austinian propositions*

The theoretical framework I will assume is that of 'Austinian semantics' (Barwise and Etchemendy 1987; Recanati forthcoming *a*). In Austinian semantics, a sentential representation represents a state of affairs, but its content cannot be reduced to the state of affairs it represents. To *use* a representation, in speech or in thought, is to 'apply' it to some situation. The complete content of a speech episode or a thought episode in which a representation  $r$  is used therefore involves not only the state of affairs  $\sigma$  which  $r$  represents, but also the situation  $s$  which the representation is supposed to fit. The complete content of the representational act is an 'Austinian proposition', consisting of a situation and a fact presented as holding in that situation. An Austinian proposition is a proposition of the form:

$$s \models \sigma$$

That the complete content of an utterance or thought is an Austinian proposition is illustrated the following example, due to Barwise and Etchemendy (Barwise and Etchemendy 1987:121-2). Looking at a poker game, I say 'Claire has a good hand'. I describe the situation I am witnessing as a situation in which Claire has a good hand. If I am mistaken and Claire is not a constituent of the situation (if she is not among the players of the game I am watching, contrary to what I believe), my utterance is not true — even if Claire is playing poker in some other part of the city and has a good hand there; the utterance is not true because the relevant situation is not as described. In other words, rather than being true iff Claire has a good hand, the utterance is true iff the situation concerned by the utterance supports <<Claire has a good hand>>. The complete content of the utterance therefore is:

that poker game  $\models$  <<Claire has a good hand>>

## 2.2 *Situations and facts*

In situation theory (e.g. Barwise 1989), situations are modeled as *sets of atomic facts*. An atomic fact (or state of affairs — I will use the two phrases indifferently) is a triple << $R^n$ ,  $\langle a_1, \dots, a_n \rangle$ ,  $i$ >> consisting of an n-place relation, a sequence of n appropriate arguments, and a polarity  $i$  which can be 0 or 1. Thus the fact that Claire has a good hand can be represented as:

<<Has-a-good-hand,  $\langle$ Claire $\rangle$ , 1>>

Atomic facts (whether positive or negative) are the only facts which situations contain. What about non-atomic facts, e.g. disjunctive facts (John loves Mary or Peter hates Paul), general facts (There is a man who

loves Mary), and so forth? A situation  $s$  cannot contain such facts, but it can *support* them, by virtue of the atomic facts it contains. The 'support' relation can be defined along the following lines:

- A situation  $s$  supports an atomic fact  $\sigma$  (in symbols:  $s \models \sigma$ ) just in case  $\sigma \in s$ .
- A situation  $s$  supports a disjunctive fact  $\sigma \vee \sigma'$  just in case  $s \models \sigma$  or  $s \models \sigma'$ .
- A situation  $s$  supports an existential fact  $\exists x \sigma(x)$  iff, for some object  $a$ ,  $s$  supports  $\sigma(a)$ .
- ...

The set of all situations which support a fact  $\sigma$  (whether  $\sigma$  is atomic or not) defines the *situation type*  $T_\sigma$ . To say that a situation is of the type  $T_\sigma$  is to say that it belongs to  $\{s \mid s \models \sigma\}$ . Insofar as it states a fact  $\sigma$ , a sentential representation (be it linguistic or mental) denotes a certain situation type, namely  $T_\sigma$ . According to Austinian semantics, the representation is true if and only if the situation which it concerns belongs to the situation type which it denotes (Austin 1950).

### 2.3 *The contextual nature of situations*

A crucial feature of the theory I will develop within the Austinian framework is the contextual nature of the situational component. The situation which a representation concerns is a highly context-dependent aspect of its content; like the reference of a demonstrative, it depends upon the intentions manifested by the speaker. The situational component is even more heavily dependent on context than the reference of a demonstrative. In the theory I will develop, the situational content is unarticulated: it is a *purely contextual* component of content.

Note how strong the claim I am making is. If the content of *every* utterance contains a situational component which is purely contextual, then context-dependence is generalized in a very radical manner. The theory to be developed is indeed radically 'contextualist'.<sup>4</sup> But I will not elaborate that point in this paper.

The claim that the situation talked about is (always) a purely contextual aspect of content can be objected to, on the grounds that the situation can be made explicit in the sentence itself. Consider the following pair:

It is raining

In Paris, it is raining

Assume that the first sentence is uttered in Paris and concerns Paris. The objection goes as follows: Both representations are about Paris. In the second case, however, the situation the representation is about (Paris) is linguistically encoded; it is not a purely pragmatic, contextual component. Hence the situational component is not always contextual.

But I will deny that the two representations concern one and the same situation. As we will see, as soon as the situation (Paris) is made explicit in the representation itself, another situation replaces it in the content of the new thought thus generated. It follows that basic vertical interpreting entails a change of context. This is reminiscent of Gardiner's treatment of illocutionary force (which he calls 'sentence-quality'). Sentence-quality is elusive, Gardiner says. As soon as it is made explicit by means of such phrases as 'I assure you', "with them comes a new

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<sup>4</sup> 'Contextualism' is my name for the sort of position argued for by Travis (passim) and Searle (1978, 1980).

importation of sentence-quality, the nature of which is not declared. Thus the attempt to assert the quality of a sentence within that sentence itself does but involve us in an infinite regress" (Gardiner 1932: 1991).<sup>5</sup> Austin rejected that line of argument and claimed that illocutionary force can be made explicit reflexively in the utterance itself (Austin 1962). Be that as it may, the situational component of content arguably has the same elusive property which Gardiner ascribes to illocutionary force: it is not possible to encode the situational component without shifting it.

### §3. $\delta$ -structures

#### 3.1 *Introducing the notion*

$\delta$ -structures are sentence-like representations which contain other sentence-like representations. To simplify matters, I will talk of 'sentences' instead of 'sentence-like representations'.  $\delta$ -structures therefore are complex sentences consisting of a sentence (the 'radical') and an expression (the ' $\delta$ -part') which makes a sentence out of a sentence. Examples of such complex sentences include:

In Spain / cigarettes are cheap

In John's mind / cigarettes are cheap

When I was young, it was the case that / cigarettes are cheap

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<sup>5</sup> On Gardiner, Austin and the explicit marking of illocutionary force, see Recanati 1987: 31ff.

In typical  $\delta$ -structures (the only  $\delta$ -structures I will consider in this paper) the  $\delta$ -part indicates the situation in which the radical holds.<sup>6</sup> A sentence may be true of (or at) a situation, but not of/at another. With respect to the situation in Spain, it is true that cigarettes are cheap; but that is not true in other situations (e.g. in France). In the first example above, it is the job of the expression 'In Spain' to indicate the specific situation in which the radical 'cigarettes are cheap' is said to hold. The  $\delta$ -parts 'in John's mind' and 'when I was young' play the same role in the other examples, except that the situations referred to are rather different.

### 3.2 *Factual and counterfactual $\delta$ -structures*

In *factual*  $\delta$ -structures, the  $\delta$ -part indicates that the radical holds in a (possibly maximal) portion of the actual world, or in a set of such portions (situation type). The portions of @ referred to in factual  $\delta$ -structures can be variously circumscribed. In some cases — as in the third example above — the situation is temporally circumscribed. Temporal  $\delta$ -structures include:

(At  $t$ / when John gets back) it will be the case that  $p$

(At  $t$ / when John got back) it was the case that  $p$

It sometimes happens that  $p$

The situation talked about can also be spatially circumscribed:

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<sup>6</sup> The negation operator 'it is not the case that' is an exception (hence negative sentences are 'atypical'  $\delta$ -structures): it makes a sentence out of a sentence, but it does not indicate the situation in which the radical holds. For more about typical and atypical  $\delta$ -structures, see Recanati forthcoming *b*, part 3, where an expanded version of this material is presented.



Two miles from here, it is the case that  $p$

Where John lives, it is the case that  $p$

In Chicago,  $p$

Other portions of @ are circumscribed around individuals. (An individual like John, or an event like World War II, can both be considered as 'situations' in the technical sense, i.e. as a sets of atomic facts.) There are, I believe, still other methods of individuating portions of @, but I cannot go into this matter and I will be content with the examples I have given. I turn to counterfactual  $\delta$ -structures.

The defining characteristic of *counterfactual*  $\delta$ -structures is that they talk about counterfactual situations or situation types. Here I am not using 'counterfactual situation' in the sense of a situation which does not obtain in the actual world. By *counterfactual situation* I mean a (possibly maximal) portion of an alternative to the actual world @. Factual situations are portions of @; counterfactual situations are portions of alternatives to @ — imaginary worlds, etc. A *counterfactual situation type* is a set of situations which contains at least some counterfactual situation.

Two types of counterfactual  $\delta$ -structures are worth distinguishing:

- *Meta-representational  $\delta$ -structures* present the radical as holding in the situation described by some representation which the  $\delta$ -part refers to. Mental states, pictures, stories, utterances, etc. all count as 'representations' in the relevant sense. Examples of meta-representational  $\delta$ -structures include:

In John's mind,  $p$

In the picture,  $p$

John believes that  $p$

John said that  $p$

According to the Ancients,  $p$

At the end of *Gone with the wind*,  $p$

- In *hypothetical  $\delta$ -structures*, the situation (or type of situation) referred to is counterfactual, but it is not presented as the situation depicted by some representation. Examples of hypothetical  $\delta$ -structures include:

It might have been the case that  $p$

It may be the case that  $p$

If John had come, it would have been the case that  $p$

If John has come, then it is the case that  $p$

Necessarily,  $p$

It is likely that  $p$ <sup>7</sup>

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<sup>7</sup> Some readers may be surprised by my claim that an indicative conditional is a counterfactual  $\delta$ -structure. Is there not a distinction between indicative conditionals and counterfactual conditionals? But I have defined a counterfactual situation type as one that contains *some* counterfactual situation; and I maintain that an indicative conditional talks about such a situation type. Both indicative and counterfactual conditionals thus talk about counterfactual situation types. The difference is that in a counterfactual conditional, the situation type contains *only* counterfactual situations, while there is no such restriction in the case of an indicative conditional.

### 3.3 Iterated and situated $\delta$ -structures

$\delta$ -structures are complex representations with two constituents: a radical and a  $\delta$ -part. The radical can be 'simple', or it can itself be a  $\delta$ -structure. If the radical itself is a  $\delta$ -structure, the resulting representation is an *iterated  $\delta$ -structure* such as the following:

The landlord thought that in 1996, Peter would be penniless

The structure of this representation is  $\delta(\delta(\delta p))$ . A simple sentence, 'Peter is penniless', is turned into a  $\delta$ -structure by applying to it the  $\delta$ -part 'In 1996 it will be the case that'. A second  $\delta$ -part, viz. 'the landlord thinks', applies to the resulting  $\delta$ -structure, thus generating an iterated  $\delta$ -structure 'the landlord thinks that/ in 1996 it will be the case that/ Peter is penniless'. A third  $\delta$ -part, viz. the 'past' operator, applies to that iterated  $\delta$ -structure. Four representations can therefore be discerned within (1): an atomic representation, a simple  $\delta$ -structure, and two iterated  $\delta$ -structures of increasing complexity. The most complex iterated  $\delta$ -structure, viz. (i), corresponds to the proposition expressed by (1):

- |       |                                     |                          |
|-------|-------------------------------------|--------------------------|
| (i)   | It was the case that...             | $\delta(\delta\delta p)$ |
| (ii)  | the landlord thinks that...         | $\delta(\delta p)$       |
| (iii) | in 1996 it will be the case that... | $\delta p$               |
| (iv)  | Peter is penniless                  | $p$                      |

Semantically, each  $\delta$ -structure represents some situation (indicated by the  $\delta$ -part) as supporting a certain fact (expressed by the radical in that  $\delta$ -structure). Let  $f$  be a function from  $\delta$ -parts to the situations they indicate; and let  $s_1, s_2$  and  $s_3$  be the values of that function for the arguments 'in 1996 it will be the case that', 'the landlord thinks that' and 'it was the case that'

respectively. Finally, let  $\sigma$  be the fact expressed by (iv). The simple  $\delta$ -structure (iii) expresses the fact that  $s_1 \models \sigma$ ; (ii) expresses the fact that  $s_2 \models \langle\langle s_1 \models \sigma \rangle\rangle$ ; and (i) — the global  $\delta$ -structure — expresses the fact that  $s_3 \models \langle\langle s_2 \models \langle\langle s_1 \models \sigma \rangle\rangle \rangle\rangle$ .

What further complicates the picture is the fact that  $\delta$ -structures, however complex, are representations, and as such *they must themselves be interpreted with respect to some situation*. As we have seen, a representation represents a state of affairs, but its content cannot be reduced to the state of affairs it represents. The complete (or 'broad') content of a representation  $r$  involves not only the state of affairs  $\sigma$  which  $r$  represents, but also the situation  $s$  in which the represented fact holds. The complete content of the representational act is an 'Austinian proposition', of the form:

$$s \models \sigma$$

A  $\delta$ -structure expresses a fact which has precisely that form; hence  $\delta$ -structures express Austinian propositions. But, *qua* representations,  $\delta$ -structures themselves must be interpreted with respect to situations. The *complete content* of the representational act of using a  $\delta$ -structure  $\delta p$  involves not only the Austinian fact which it expresses, but also a situation which is presented as supporting that fact. The structure of the complete content is:

$$s' \models \langle\langle s \models \sigma \rangle\rangle$$

Here  $s$  is the situation represented by the  $\delta$ -structure as that in which the fact expressed by the radical holds; while  $s'$  is the situation with respect to which the  $\delta$ -structure itself is interpreted.  $s$  and  $s'$  play quite different roles:

I will say that  $s'$  is 'exercised' in interpreting the  $\delta$ -structure, while  $s$  is 'mentioned' by a constituent of the  $\delta$ -structure. To distinguish the two roles, I will put the exercised situation into brackets:

$$[s'] \models \langle\langle s \models \sigma \rangle\rangle$$

This formula corresponds to what I call a *situated  $\delta$ -structure*.

Let us return to our complex example of iterated  $\delta$ -structure: 'The landlord thought that in 1996, Peter would be penniless'. That complex  $\delta$ -structure mentions three situations  $s_1$ ,  $s_2$  and  $s_3$  corresponding to the three  $\delta$ -parts, but it is contextually interpreted with respect to yet another situation — some situation in which there is one and only one landlord, for example the rent situation.<sup>8</sup> The result is a situated  $\delta$ -structure, with a rather complex representational component:

$$[\text{The rent situation}] \models \langle\langle s_3 \models \langle\langle s_2 \models \langle\langle s_1 \models \sigma \rangle\rangle \rangle\rangle \rangle$$

### 3.4 *Exercised situation vs. mentioned situation*

It is easy to confuse the exercised situation and the mentioned situation. Both are used to interpret a representation expressed by (a part of) the  $\delta$ -structure: the representation expressed by the radical is interpreted with respect to the mentioned situation, and the representation globally expressed by the  $\delta$ -structure is interpreted with respect to the exercised situation. Despite their functional similarity, the situation exercised and that mentioned by the  $\delta$ -part must be distinguished; for, in general at least, they are distinct situations. What follows is an argument in support of the

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<sup>8</sup> It is a constraint on definite descriptions that they must be interpreted with respect to situations in which there is one and only one object satisfying their descriptive content.

bold conjecture, that the exercised situation and the mentioned situation are always distinct.

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*. The situation might be, for example, the Continent of Europe (which contains Paris, Rome, Vienna, etc.). But the locationally non-specific 'It is raining' can be interpreted with respect to a smaller situation, viz. Paris itself (to the *exclusion* of any other location). Thus we have the following contrast:

- (1) [Paris]  $\models \langle\langle \text{it is raining} \rangle\rangle$
- (2) [Europe]  $\models \langle\langle \text{Paris} \models \langle\langle \text{it is raining} \rangle\rangle \rangle\rangle$

A locationally specific utterance such as 'In Paris, it is raining' contextually expresses a situated  $\delta$ -structure like (2). But if someone, in Paris, utters the locationally non-specific 'It is raining', the complete content she thereby expresses may well be simpler and correspond to (1).

From what I have said it follows that basic vertical interpreting involves a change of context. In the transition from 'It's raining' to 'It's raining in Paris', the exercised situation shifts and becomes 'larger'.<sup>9</sup> It also

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<sup>9</sup> Intuitively, we go from a portion of reality (e.g. the city of Paris) to a larger portion containing the city of Paris plus other places. But I said that situations are modeled as

follows that (contrary to what was suggested earlier) the content changes from 'It's raining' to 'It's raining in Paris': as (2) shows, the content of 'It's raining in Paris' is more complex than the content of 'It's raining'. Despite this change in content, some crucial aspect of the content of the original representation is retained. What is retained is the Austinian structure 'Paris  $\models \langle\langle \text{It's raining} \rangle\rangle$ ', which is common to (1) and to (2). In (2) that structure is that of the radical, while in (1) that structure corresponds to the complete content.<sup>10</sup>

In the next two sections I will study a transition opposite to that from (1) to (2). The latter is an instance of 'reflection':

*Reflection*

$$[s] \models p \text{ ---} > [s'] \models \langle\langle s \models p \rangle\rangle.$$

The transition I am going to talk about, 'projection', has the opposite form:

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sets of facts, hence the relevant relation 'larger than' must be defined in terms of set inclusion. This constraint has one interesting consequence: the facts which situations contain must be 'persistent' (otherwise the intuitive relation 'larger than' can no longer be captured). However central they are, those issues involving persistence and situational inclusion cannot be dealt with in this paper, and I will keep using intuitive notions such as that of a situation's being 'larger' than another one and 'containing' it as a constituent without analysing them.

<sup>10</sup> Note that 'It's raining here' is closer to 'It's raining in Paris' than to 'It's raining' in both respects. (i) The place where it is raining is explicitly represented both in 'It's raining in Paris' and in 'It's raining here'. The content of 'It's raining here' is an iterated  $\delta$ -structure, like the content of 'It's raining in Paris' (and unlike the simpler content of 'It's raining'). (ii) In both cases that place is virtually contrasted with others, hence the exercised situation is larger than that in (1).

*Projection*

$$[s'] \models \langle\langle s \models p \rangle\rangle \dashrightarrow [s] \models p.$$

## §4. Projection

### 4.1 *Projection as situational assumption*

Given a situated  $\delta$ -structure  $[s'] \models \langle\langle s \models \sigma \rangle\rangle$ , consisting of an exercised situation and an inner  $\delta$ -structure, projection consists in 'assuming' the mentioned situation  $s$  which figures in the inner  $\delta$ -structure: the exercised situation with respect to which the  $\delta$ -structure is interpreted drops out of the picture, and the mentioned situation becomes the exercised situation. Projection therefore takes us from (a) to (b):

- (a)  $[s'] \models \langle\langle s \models \sigma \rangle\rangle$
- (b)  $[s] \models \dots$

In this section I will give a few examples of projection. We shall see that projection can operate from any  $\delta$ -structure, and that it can also operate from 'simple' representations.

### 4.2 *Projection from hypothetical $\delta$ -structures*

Imagine the following discourse, consisting of four sentences D1 to D4:

(D)

John may be early. If he is early, he will wait. He will read the newspaper, or will think about his next book. There won't be any problem.

The first sentence, 'John may be early,' posits a situation type: it says that, in some possible situation, John is early to his appointment:



D1  $\exists s: s \models \langle\langle \text{John is early} \rangle\rangle$

That  $\delta$ -structure itself is interpreted with respect to a situation  $s_I$ , a situation which supports the fact that John *may* be early. That (exercised) situation is different from the possible situation in which John *is* early (mentioned situation). The complete content of D1 therefore is:

C(D1)  $[s_I] \models \langle\langle \exists s: s \models \langle\langle \text{John is early} \rangle\rangle \rangle\rangle$

The second sentence, D2, says something of the situation type posited by the first sentence: that it supports  $\langle\langle \text{John will wait} \rangle\rangle$ :

D2  $T_{\text{John is early}} \models \langle\langle \text{John will wait} \rangle\rangle$

That  $\delta$ -structure also must be interpreted with respect to a situation. Simplifying somewhat, I will take that situation to be the same as previously, viz.  $s_I$ . The complete content of the second sentence therefore is:

C(D2)  $[s_I] \models \langle\langle T_{\text{John is early}} \models \langle\langle \text{John will wait} \rangle\rangle \rangle\rangle$

At this point projection operates, and the situation type  $T_{\text{John is early}}$  is *assumed*. The third sentence, which describes what John will do, is interpreted with respect to that situation type:

C(D3)  $[T_{\text{John is early}}] \models \langle\langle \text{John will read the newspaper  
or think about his next book} \rangle\rangle$

Sentence (4) also is interpreted with respect to that situation:

C(D4)                    [T<sub>John is early</sub>] |= << There won't be any problem >>

Most philosophers, confronted with the little text above, would consider sentences D3 and D4 as elliptic for some conditional sentence: 'If John is early he will read the newspaper or will think about his next book', and 'If John is early there won't be any problem' respectively. That is because they have the feeling that what is asserted is 'about' the possible situation in which John is early. But there are different ways of being about a situation. In a conditional sentence such as 'If John is early, he will wait', the situation in which John is early is explicitly mentioned; but in (3) and (4) the situation in which John is early is assumed. The representation 'concerns' that situation, but it is not 'about' it (Perry 1986*b*). I shall return to that contrast in §6.

#### 4.3 *Projection from factual $\delta$ -structures*

Factual  $\delta$ -structures too allow projection. (E) below is very similar to (D):

(E)    In Chicago the temperature is currently minus 40. (E1)  
        Schoolchildren stay at home. (E2)

Here too I would say that the second sentence is not elliptical for 'In Chicago schoolchildren stay at home', even though it is clearly interpreted with respect to the Chicago situation. The complete content of the first sentence is:

C(E1)[*s*<sub>2</sub>] |= << Chicago |= << the temperature is minus 40 >> >>

Projection operates from that situated  $\delta$ -structure: the Chicago situation is assumed, and the second sentence is interpreted with respect to that situation:

C(E2)      [Chicago]  $\models$   $\langle\langle$  schoolchildren stay at home  $\rangle\rangle$

The contrast between C(E1) and C(E2), that is, between mentioning the Chicago situation and assuming that situation, is similar to the contrast, mentioned earlier, between

[Paris]  $\models$   $\langle\langle$  it is raining  $\rangle\rangle$

and

[France]  $\models$   $\langle\langle$  Paris  $\models$   $\langle\langle$  it is raining  $\rangle\rangle$   $\rangle\rangle$

But there is a significant difference between the Chicago example and the Paris example. In the latter example the exercised situation — Paris — is provided by the extralinguistic context; in E2 the exercised situation — Chicago — is a situation which has been mentioned and becomes the exercised situation through projection. That distinction too will be discussed in §6.

#### 4.4 *Projection from simple representations*

Projection from a  $\delta$ -structure is a particular case of situational assumption: it is the case in which we assume a situation mentioned in some  $\delta$ -structure. But any mentioned situation can be assumed, even if it's not mentioned *in a*  $\delta$ -structure. In the following examples the 'base' of the projection (the representation from which projection operates) is not a  $\delta$ -structure:

(1) John is totally paranoid. Everybody spies him or wants to kill him,

including his own mother.

- (2) I did not know you were so much interested in knights. You should read *A Connecticut Yankee in King Arthur's Court*, by Mark Twain. There are a lot of knights.
- (3) Berkeley is a nice place. There are bookstores and coffee shops everywhere.

In those examples the base of the projection (i.e. the underlined sentence) is not a  $\delta$ -structure; it is a 'simple' representation with the form  $R^n (a_1, \dots, a_n)$ , e.g. 'Berkeley is a nice place', or 'John is paranoid', or 'You should read *Connecticut Yankee*'. Yet projection operates: the exercised situation shifts from a broader situation  $s'$  including the situation  $s$  considered as object, to the situation  $s$  itself.

In (1) the (exercised) situation we start with is a real situation  $s'$  which contains John and his mental states. That situation  $s'$  is said in the first sentence to support  $\langle\langle$ John is paranoid $\rangle\rangle$ . Now a paranoid is someone who believes himself to be in a certain type of situation. Let us call the situation John believes himself to be in his 'belief-world',  $Bel_{John}$ . The second sentence of (1) is interpreted directly with respect to that belief world, which is assumed. The speaker does not seriously assert that everybody spies John or wants to kill him: she expects the hearer to understand that fact as holding in John belief-world. Such a shift in point of view is constitutive of 'free indirect speech', of which (1) is a typical instance.

In (2) Twain's fiction (a portion of the actual world) is mentioned in the first sentence. Now Twain's fiction has a certain content, that is, it describes a certain situation. The second sentence of (2) is directly

interpreted with respect to that counterfactual situation. It is in that situation that there are a lot of knights. Similarly, in (3), the situation mentioned in the first sentence is Berkeley, and the second sentence is interpreted with respect to that situation: 'everywhere' ranges over locations in Berkeley.

The difference between (1)-(2) and (3) will be dealt with in §5. What is common to those examples is that they all involve projection: the situation mentioned in the first sentence is 'exercised' and used as context for the interpretation of the second sentence. Examples (1) to (3) can be analysed as follows:

C(1)

$[s'] \models \langle\langle \text{John is paranoid} \rangle\rangle$

$[\text{Beljohn}] \models \langle\langle \text{John's mother wants to kill him} \rangle\rangle$

C(2)

$[s'] \models \langle\langle \text{You should read } \textit{Connecticut Yankee} \rangle\rangle$

$[w(\textit{Connecticut Yankee})] \models \langle\langle \text{There are a lot of knights} \rangle\rangle$ <sup>11</sup>

C(3)

$[\text{USA}] \models \langle\langle \text{Berkeley is a nice place} \rangle\rangle$

$[\text{Berkeley}] \models \langle\langle \text{There are coffee shops everywhere} \rangle\rangle$

## §5. Projection from meta-representations

### 5.1 *Projection, meta-representations, and the dual structure of situations*

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<sup>11</sup> On the meaning of 'w' see below, §5.1.

In examples (1) and (2) from the previous subsection (repeated below), the base of the projection is a meta-representation.

- (1) John is totally paranoid. Everybody spies him or wants to kill him, including his own mother.
- (2) I did not know you were so much interested in knights. You should read *A Connecticut Yankee in King Arthur's court*, by Mark Twain. There are a lot of knights.

In (2) the base refers to a certain book, and in (1) it (indirectly) refers to John's mental states. Both the book and the mental states are 'representations' which have a certain content, i.e. which describe a certain situation. In meta-representational projection the base refers to a representation, and the situation which is projectively assumed is the situation which the mentioned representation describes. I refer to that situation as  $w(r)$ : the world of the representation. Depending on the sort of representation  $r$  is,  $w(r)$  will be the world of a picture, of a novel, of an utterance, or the belief world of some particular person.

Meta-representations are known to involve a double layer of content. They are about some object-representation, but the object-representation itself is about something, hence two levels are involved and projection becomes possible. Examples like (3), however, show that that dual structure is an instance of a more general phenomenon.

- (3) Berkeley is a nice place. There are bookstores and coffee shops everywhere.

Berkeley is not a representation, and the first sentence of (3) is not a meta-representation. Yet we find the dual structure which makes projection possible. The first sentence of (3) talks directly about Berkeley considered as an object: it states a fact of which Berkeley is a constituent. But the second sentence of (3) does not talk about Berkeley in this manner. The second sentence of (3) expresses a fact internal to Berkeley rather than a fact 'about' Berkeley in the sense of including Berkeley as a constituent. The second sentence of (3) is interpreted with respect to the Berkeley situation without mentioning that situation. That is possible because the Berkeley situation has already been mentioned — in the first sentence. This is a standard instance of projection.

'Situations' are entities with a dual character. They are objects which enter into relations and can be thought and talked about; but at the same time they have a 'content', which is a sort of micro-world, containing the facts internal to the situation. When we mention a situation, we evoke its content and this is sufficient to make projection possible: mentioning a situation makes its content available as a 'context' for the interpretation of other representations which do not mention that situation. (See Sperber and Wilson 1986 for the relevant notions of 'context' and 'interpretation'.) It follows that projection is possible whenever a situation with a certain content is mentioned; what is mentioned need not be a representation.

## 5.2 *Situational content vs representational content*

That is not to deny that there are clear differences between meta-representational cases like (1)-(2), on the one hand, and non-meta-representational cases like (3) on the other hand. The meta-representational examples, especially (1), clearly involve something like mental projection. Few students of 'free indirect speech' would deny this. The same intuition is commonly appealed to by theorists of fiction, who maintain that mental

projection is involved in examples like (2). Note that the intuition is weaker in the second case than it is in the first case; that may be because the projection is very routinely accomplished in our conventional way of talking about fiction. Be that as it may, when we turn to example like (3), it becomes highly controversial that mental projection is involved (as I claim): we do not have strong intuitions to that effect, as we do in the case of (1).

I think the intuitive difference between (1)-(2) and (3) points to an important difference between representations and other entities. Let us compare Berkeley and Twain's book. Being a representation, Twain's book has something which Berkeley hasn't, namely, a *representational* content. I said that Berkeley, *qua* situation, has a content, namely the set of facts internal to the situation; but that *situational* content is not the same sort of thing as the content of Twain's book. The situational content of *s* is the set of facts internal to *s*. The distinction between situational content and representational content is important because representations themselves are 'situations'. *Qua* situations, they have a dual character: they are objects which enter into relations, and they have a situational content. In the same way in which Berkeley has a situational content, namely the set of facts which hold in Berkeley, Twain's book has a situational content, consisting of 'internal' facts such as the fact that there are forty five chapters (the first one of which is not counted as a chapter), or the fact that a particular passage is borrowed, language and all, from the *Morte d'Arthur*. What is distinctive of Twain's book, *qua* representation, is that it has a *representational content* over and beyond its situational content. The representational content of Twain's book contains e.g. the fact that a person called Hank Morgan, cracked on the head by a crowbar in nineteenth-century Connecticut, wakes to find himself in King Arthur's England.



Because representations have a representational content over and above the situational content which every situation has, they allow for a special type of projection which I call 'intensional projection'. Let us first characterize the other type of projection: *extensional* projection. In extensional projection, a situation  $s$  is mentioned, and thereafter assumed: during the first stage, the situation  $s$  is considered as an object and talked about from the perspective of a broader, exercised situation  $s'$ , while the second stage sees  $s$  itself playing the role of the exercised situation. In *intensional* projection, something similar but more complex happens. A situation  $s$  is also mentioned during the first stage, but that situation  $s$  is a representation and, *qua* representation, it describes a situation  $w(s)$ . Now it is the described situation  $w(s)$  which is assumed during the second stage, in intensional projection. So we have the following contrast:

### **Extensional projection**

$[s'] \models \langle\langle \dots s \dots \rangle\rangle$

$[s] \models \dots$

### **Intensional projection:**

$[s'] \models \langle\langle \dots s \dots \rangle\rangle$

$[w(s)] \models \dots$

The difference is illustrated by:

(4) I've just read Twain's book. There are a lot of chapters.

vs.

(5) I've just read Twain's book. There are a lot of knights.

In both cases projection operates: the second sentence is interpreted with respect to an exercised situation distinct from the exercised situation which governs the interpretation of the first sentence. In (4) the exercised situation for the second sentence is the situation mentioned in the first sentence (Twain's book). In (5) the exercised situation for the second sentence is  $w(\text{Twain's book})$ : the story told in the book.

Whenever it is a representation which is mentioned in the base, the two types of projection can take place; while only extensional projection is possible when the mentioned situation is not a representation. For an illustration of the contextual ambiguity thus generated, consider this piece of discourse:

I've just read Twain's book. There are a lot of pages.

'Page' can mean either *one side of the leaf of a book*, or *a young male attendant on kings, nobles etc.* In the context of 'I've just read Twain's book', both readings make sense. In the 'leaf' reading the second sentence states a fact concerning Twain's book (extensional projection); in the 'young male' reading it states a fact concerning the story told by Twain's book (intensional projection).

The difference between extensional and intensional projection accounts for the difference in our intuitions concerning (1)-(2) and (3) above; it accounts for the fact that, in the Berkeley example, the projection is barely noticed, while in the 'paranoid' example the shift of point of view is very manifest. Extensional projection is like *zooming*: a detail  $s$  from some original scene (= exercised situation)  $s'$  is focussed on in such a way that it becomes the scene (the exercised situation). The difference between the first stage (when  $s$  is seen against the background of other things in  $s'$ ) and the second stage (when  $s$  itself is the background against which things

in  $s$  are seen) is a difference of *grain*. In intensional projection, however,  $s$  is not a portion of  $s'$  which has been focussed on, but an alternative universe. The shift is much more dramatic and noticeable.

The intuitive difference between the two types of case should not be overestimated, however. As I already mentioned, example (2) is intermediate between (1) and (3) as far as the strength of our intuitions is concerned. And examples of intensional projection in which the projective step is hardly noticed are not difficult to find. What follows is an example taken almost at random.

### 5.3 *An example of intensional projection*

Open the first encyclopedia of philosophy that comes to hand. In a typical entry from such an encyclopedia, you will find sentences explicitly about the philosopher's life and views (e.g. sentences beginning with 'According to Leibniz...'), followed by sentences directly presenting those views. The following passage from Urmson's *Concise Encyclopedia* provides an example:

Leibniz's [metaphysics] is completed by his proofs of the existence of God. The system of created monads is, in a sense, complete in itself, that is, it is necessarily as it is granted that any part of it exists. But no one part of it contains the reason for its own existence, so that the reason for its existence must lie in a being which does contain its own reason for existence, that is, in a necessary being, which we call God. This argument, the 'cosmological argument', appears in the *Monadology* and there is nothing in it which is peculiar to Leibniz.

[Urmson, ed., 1975: 156]

There is a clear contrast between the first and last sentence of that passage on the one hand, and the intermediate sentences on the other. The intermediate sentences state Leibniz's own view of the matter: it is Leibniz

himself who speaks, as it were. The first and last sentence *refer to* Leibniz and his view, and express the beliefs of the author of the article, rather than Leibniz's beliefs.

In the situational framework, the passage can be described as follows. The author of the article talks about one particular aspect of the history of Western philosophy and philosophers, viz. Leibniz and his metaphysical system. That is the exercised situation for the first and last sentences of our passage: the author of the article states two facts concerning that portion of Western philosophy, namely the fact that Leibniz's doctrine of monads is completed by his proofs of the existence of God (first sentence), and the fact that the Cosmological argument can be found in the *Monadology* and is not peculiar to Leibniz (last sentence). In contrast, the exercised situation for the intermediate sentences is not the portion of the world which includes Leibniz and his works, but a counterfactual situation, viz. the situation which Leibniz's metaphysical writings describe: the 'Leibnizian universe', as we may call it. That is a very different situation from the portion of the actual world which the author of the encyclopedia article talks about. The Leibnizian universe includes God, monads, etc; the portion of @ which the author of the article talks about includes Leibniz, Arnauld, and the Royal Library at Hanover.

The intermediate sentences are meant as (direct) descriptions of the Leibnizian universe; they are not an elliptical description of Leibniz describing the Leibnizian universe. In other words, projection operates. But projection is such a pervasive mechanism that it is barely noticed even though, in this particular case, it belongs to the more dramatic, intensional variety.

## **§6. Situations and cognitive content**

### 6.1 *Projection vs. ellipsis*

Let us go back to the Berkeley example:

Berkeley is a nice place. There are bookstores and coffee shops everywhere.

Most language theorists would say that 'There are bookstores and coffee shops everywhere' is *elliptical* for 'In Berkeley, there are bookstores and coffee shops everywhere'. In what sense is my claim about projection different from the traditional ellipsis claim? What is the difference between saying that the sentence is elliptical for 'In Berkeley there are bookstores and coffee shops everywhere' and saying that the Berkeley situation is contextually assumed?

I agree that Berkeley is an aspect of the content of 'There are bookstores and coffee shops everywhere', in the following sense. The speaker (or the thinker) has Berkeley in mind when she says 'There are bookstores and coffee shops everywhere'. She is talking of Berkeley, not of Paris or any other city. In Perry's terminology, Berkeley is an 'unarticulated constituent' of the content expressed by the second sentence. Still, there are different ways of construing this notion of an unarticulated constituent. To say that 'There are bookstores and coffee shops everywhere' is elliptical for 'In Berkeley there are bookstores and coffee shops everywhere' is to opt for a particular construal, one which I think must be rejected.

In the Austinian framework the complete content of a representation is two-fold: it consists of the fact which the representation expresses, plus the situation which that fact concerns. The structure of the complete content is:

$$[s] \models p$$

Since the complete content of an utterance or thought is an Austinian proposition with two components, there are two options for unarticulated constituents: they can belong either to the situational component, or to the 'radical' (i.e. the right-hand side of the Austinian proposition).

According to my theory of projection, the situation mentioned by the base determines the 'exercised situation' with respect to which the representation that follows is projectively interpreted. The complete content of 'There are bookstores and coffee shops everywhere' therefore is:

[Berkeley] |= <<There are bookstores and coffee shops  
everywhere>>

In other words, the fact which is stated (on the right-hand side) does *not* include Berkeley as a constituent; in that respect it is very different from the fact stated by the base, namely, the fact that Berkeley is a nice place. For that fact is about Berkeley in the strong sense: it includes it as a constituent. The complete content of the base is:

[The US situation] |= << Berkeley is a nice place >>

Here we find Berkeley on the side of the radical, rather than on the situational side.

In this theory there is a semantic difference between 'There are bookstores and coffee shops everywhere', which states a fact *concerning* Berkeley, and 'In Berkeley there are bookstores and coffee shops everywhere', which states a different fact (a fact *about* Berkeley), concerning a wider portion of the universe. That semantic difference is the reason why I reject the notion that one utterance is merely 'elliptical' for the other (hence synonymous with it).

## 6.2 'Concerning' and being 'about'

The difference between 'concerning' and 'being about' has been elaborated by Perry in his paper 'Thought without representation' (Perry 1986*b*). That difference comes out most clearly in the case of the Z-landers, a group of people who 'do not travel to, or communicate with residents of, other places' and have no name for the place they live in.

When a Z-lander sees rain, he will say to others not in a position to look outdoors, *It is raining*. His listeners then act appropriately to there being rain in Z-land: they close the windows in Z-land, cancel plans for Z-land picnics, and grab umbrellas before going into the Z-land out-of-doors. They have no other use for 'It is raining'. They do not call their sons in far-off places, or listen to the weather news, or read newspapers with national weather reports. [Perry 1986*b* : 212]

As Perry points out, Z-land is an unarticulated constituent of the content expressed by the Z-lander's utterance 'It's raining'. The utterance is true if and only if it is raining *in Z-land*. But the Z-landers do not have a concept or idea of Z-land as opposed to other places. Their weather thoughts 'concern' Z-land, not by virtue of containing a representation of Z-land (in which case they would be 'about' Z-land), but by virtue of their *being in Z-land*. In other words, the unarticulated constituent is unarticulated not only linguistically but also mentally: it's a constituent of content directly provided by the environment.

In such cases the mental representation, considered in abstraction from the environment which it concerns, expresses less than a complete proposition. The Z-landers think 'It is raining': the content thus articulated is not fully propositional — it is a propositional function, which is truth-evaluable only with respect to a particular place. Let us call that articulated content the 'cognitive' or 'narrow' content of the representation. It is only

when the environment is taken into account that a complete, 'broad' content is expressed, which includes Z-land as an *unarticulated* constituent. In the Austinian framework, the distinction between the ('narrow') mental component and the environmental component corresponds to the distinction between the exercised situation and the radical. The complete content of the Z-lander's thought or utterance is:

[Z-land]  $\models \langle\langle \text{It's raining} \rangle\rangle$

Now, as Perry pleasantly says, 'there is a little of the Z-lander in the most well-traveled of us' (Perry 1986b : 216). The difference between the Z-landers and us is that we do have a notion of the place where we live, as opposed to other places; so we are capable of entertaining a thought *about* the place where we are, such as 'It's raining in Paris, but not in Saint Tropez'. Perry's point, however, is that when we're in Paris (or Palo Alto) and we say or think 'it's raining', we need not think *reflectively* about the place we're in. We can think 'It's raining' and let the place we are in complete the content of our thought. In such a case the complete content of our thought is:

[Paris]  $\models \langle\langle \text{It's raining} \rangle\rangle$

rather than

[s']  $\models \langle\langle \text{Paris} \models \langle\langle \text{It's raining} \rangle\rangle \rangle\rangle$

Our thought 'concerns' Paris, but it is not about Paris in the sense of including a specific representation of Paris.



### 6.3 *The cognitive argument*

The major reason for putting the unarticulated constituent on the situational side rather than the side of the radical is that this enables us to capture cognitive generalizations such as: when someone thinks <<It's raining>> she takes her umbrella if she wants to go outdoors, she cancels plans for picnics, and so forth. There is a sense in which the person who thinks 'It's raining' in Palo Alto, and the person who thinks that in Paris, think similar thoughts, resulting from similar perceptions, and behave similarly. To account for that similarity we must posit some element of content common to the two thoughts — something which does not vary when the concerned situation varies (Perry 1986*b*). In the Austinian framework, the radical <<It is raining>> is that common element of content. In a speech or thought episode, that radical is 'applied' to the situation which the utterance (or thought) concerns.

Barwise (1989) also appeals to the cognitive argument, in connection with the following example. Suppose Holmes and Watson face each other. In between stand the salt and the pepper. Holmes says 'The salt is left of the pepper', because the salt is left of the pepper from Holmes's perspective. From Watson's perspective, the pepper is left of the salt; however, Watson is mistaken as to which shaker is which, and he wrongly says 'The salt is left of the pepper'. Holmes and Watson apparently 'say the same thing', but Holmes is right and Watson wrong. This familiar situation shows that the complete content of what they say or think cannot be merely: 'The salt is left of the pepper'. Some unarticulated constituent must be involved, which accounts for the difference in truth-value. This unarticulated constituent is the *perspective*: the salt is on the left from Holmes's perspective, but it is not on the left from Watson's perspective. That is why Holmes is right and Watson wrong. This said, there are two ways to go, according to Barwise:

the unarticulated constituent may be fed into the radical, or into the situation talked about.

On the first option, both Watson and Holmes are talking about the same 'objective' situation (the situation they share), but they state different facts about that situation. The facts they state are, respectively:

*Holmes:*

Left-of (salt, pepper, perspective H)

*Watson:*

Left-of (salt, pepper, perspective W)

Watson's and Holmes's perspectives turn out to be (unarticulated) constituents of the facts which they state.

On the second option, the radical is invariant: Holmes and Watson state the same fact:

Left of (salt, pepper)

However, Holmes and Watson talk about *different situations*. The situations are individuated in terms of Holmes's and Watson's subjective perspectives on them.<sup>12</sup> The complete content of Watson's and Holmes's respective utterances are:

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<sup>12</sup> The second option could be objected to on the following grounds. Whatever is talked about has to be 'objective' to some degree, and 'perspectival situations' do not have the right degree of objectivity: the perspective seems to be much more an aspect of the 'mode of presentation' under which the situation is thought about, than an aspect of the situation itself. That objection is serious but I think it can be met. Nothing prevents us from viewing perspectival situations as 'reflexive situations' which include a viewer with a perspective *on* the situation. Holmes's situation is a reflexive situation including

*Holmes:*

[Holmes's perspective]  $\models$   $\langle\langle$ 'The salt is left of the pepper' $\rangle\rangle$

*Watson:*

[Watson's perspective]  $\models$   $\langle\langle$ 'The salt is left of the pepper' $\rangle\rangle$

The second option enables us to say that the radical is the same for Watson and Holmes, thereby capturing their similarity of attitudes. If we take the first option, then, according to Barwise (1989: 240), 'we have nothing in the theory that classifies the similarity in attitudes of Holmes and Watson in cases like these. And it is this similarity that leads them to make the same bodily movements, reaching in the same direction, though toward different objects, when they want the salt.'

#### 6.4 'Deictic' and 'anaphoric' cases

The similarity between Perry's and Barwise's examples and my examples of projection is striking when we consider how they are analysed in the Austinian framework:

[Palo Alto]  $\models$   $\langle\langle$ 'It's raining' $\rangle\rangle$

[Holmes's perspective]  $\models$   $\langle\langle$ 'The pepper is left of the salt' $\rangle\rangle$

[Berkeley]  $\models$   $\langle\langle$ 'There are bookstores and  
coffee shops everywhere' $\rangle\rangle$

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him as viewer, while Watson's situation is identical except that *he* is the viewer. Those reflexive situations are 'objective' because Holmes and Watson are both objectively viewers; their having a perspective on the situation they participate in is as much an objective fact as anything else. Holmes and Watson merely focus on their own perspectives, i.e. on a portion of the situation they are both in.

However, there is also a striking difference between the first two examples and the third one — a difference which it is time to consider and account for.

Succinctly put, the difference is this. In the Barwise-Perry examples the exercised situation is determined by the external context: the place where the Z-landers live, the place where Perry's son is, Holmes's perspective, etc. In the projection examples the exercised situation is determined *projectively from the preceding discourse*.

The distinction I have just made is similar to, and no more mysterious than, the difference between anaphoric and demonstrative readings of the pronoun 'he'. The contextual values of the pronoun can be determined directly by the situation of discourse, or indirectly from the discourse itself. In the same way (though on the 'unarticulated' mode), the exercised situation, determined by the context, can be determined directly by the situation of discourse ('deictic' cases) or indirectly from the discourse itself ('anaphoric' cases).

In 'deictic' cases, the agent is *in* the relevant situation, hence she can entertain the contents appropriate to that situation (e.g. 'It's raining') without having to entertain the reflective content 'about' the situation (e.g. 'It's raining in Paris'). In 'anaphoric' cases the relevant situation (e.g. Berkeley) is available indirectly, through projection from some representation about that situation ('Berkeley is a nice place').

The cognitive argument which Perry and Barwise both appeal to in support of the Austinian analysis is suited to 'deictic' cases: when a cognitive agent finds herself in a situation *s* and thinks 'It's raining', she tends to behave in a certain way: she takes her umbrella, etc. The agent's behavioural dispositions reflect the radical which she entertains, independently of the particular situation which the thought concerns. Can

we extend this argument to 'anaphoric' cases? It seems that we cannot. For the cognitive agent who thinks: 'In Chicago the weather is bad. *It's raining*. Bobby thinks of going to Florida for a change' is not thereby disposed to take her umbrella when going outdoors. The situation which she assumes (the Chicago situation) is distinct from the situation she is in, and her dispositions to act concern the latter, not the former.

In projection, however, the subject's *mental* behaviour reflects the radical she entertains. The agent who projectively entertains the representation 'It is raining' is thereby disposed to inferentially exploit that representation in spontaneous reasoning. For example she will infer that the pavements are wet, etc. The subject does not believe that it is raining, but, as long as she assumes the Chicago situation, she 'accepts' the representation that it is raining and feed it to the inferential device, as if it was a genuine belief. (Normally, only representations in the belief box are freely exploited in spontaneous inference.) In other words, she engages in 'mental simulation'.<sup>13</sup> In mental simulation the path to action is blocked but otherwise the subject is in qualitatively the same cognitive state she would be in if the representation she accepts concerned her actual situation (Currie 1995). If, as I claim, projection in general (and not merely intensional projection) is an instance of mental simulation, the cognitive argument can be appealed to with respect to 'anaphoric' cases as well as to 'deictic' cases.

## §7. Conclusion

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<sup>13</sup> On mental simulation, see Kahneman and Tversky (1982) and the huge literature on simulation in psychological explanation (see Davies and Stone, eds, forthcoming). For more on belief, acceptance and simulation, see Recanati, forthcoming *b*, part 2.

My starting point in this paper was the transition from 'It's raining' to 'It's raining in Paris':

It's raining

This is Paris

*Ergo*: It's raining in Paris

That transition (an instance of 'basic vertical interpreting') I call 'reflection'; it involves going from a representation concerning a situation  $s$ , to a representation explicitly about  $s$ .

I have shown that reflection entails a shift in the exercised situation, hence a change of context (since the exercised situation is an aspect of the context with respect to which the representation is interpreted). This is in contrast to the standard view, according to which vertical interpreting in general is de-coupled from contextual change.

The context is not the only thing that changes in the reflective process; the content of the representation also changes, contrary to what the standard view leads us to expect. For example we go from (1) to (2):

(1) [Paris]  $\models$   $\langle\langle$ It's raining $\rangle\rangle$

(2) [Europe]  $\models$   $\langle\langle$ Paris  $\models$   $\langle\langle$ It's raining $\rangle\rangle$  $\rangle\rangle$

Both the complete content (the global Austinian proposition) and the radical (the right hand side of the Austinian proposition) differ in (1) and (2). But the transition still counts as content preserving in some crucial respect. What is retained is the claim that a certain situation (the Paris situation) supports a certain fact (the fact that it is raining). The difference between the premiss and the conclusion is that the situation in question is exercised in the premiss, mentioned in the conclusion. The Austinian framework permits us to capture that common component of content.

A large portion of this paper has been devoted to an instance of basic vertical interpreting distinct from reflection: projection. Projection is very similar to reflection, but inversely oriented. Projection and reflection both involve two representations: one which concerns a situation  $s$ , and another one which is about that situation. Through reflection we go from the representation concerning  $s$  to the representation about  $s$ . Through projection we go from the representation about  $s$  to the representation concerning  $s$ . I believe that projection, in both speech and thought, is an important phenomenon, and I hope that my efforts (following those of Fauconnier 1985)<sup>14</sup> will encourage others to investigate it further. I also believe that Austinian semantics provides an adequate framework for studying that phenomenon.

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<sup>14</sup> Fauconnier's pioneering theory of 'mental spaces' uses a notion like that of a  $\delta$ -structure, and it unifies extensional and intensional projection. I am much indebted to that work.

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