

Two examples of the treatment of reference in Fauconnier’s mental space theory

0. Introduction

Work in cognitive science has expanded during the last two decades (some say that the “third cognitive revolution” is underway), and it continues to expand rapidly. As far as linguistics is concerned, a lot of research is done in this field and predictions are made based on findings from several subfields of the cognitive science dealing with language study – psycholinguistics, neurolinguistics, computational linguistics and language processing. These predictions include semantics and cognitive semantics research that tries to explain the way the cognitive processes are involved in meaning and meaning construction. According to cognitive semanticists, meaning is conceptualization; meaning is constructed in the mental experience of the language user.

1. Mental space theory – a brief outline

In this paper, I’ll try to point out some characteristics of one of the “classical” and influential approaches in cognitive linguistics – and cognitive semantics, to be precise – Fauconnier’s Mental Spaces Theory (MST). What is it MST? First, as the author claims, it is a cognitive model. And this model involves two (basic) elements: mental spaces and connectors across spaces. These are simple cognitive structures that together with a few general principles¹ solve key issues concerning reference in linguistics and philosophy of language. But before looking at Fauconnier’s examples revealing new ways of addressing the reference problem in linguistics, I list some of the mental spaces features, as the author describes them:

- Mental spaces may be created and (re) accessed through what Fauconnier calls “space-builders²”.
- Mental spaces may be related one to another by what Fauconnier calls “connectors”.
- Mental spaces may contain only mental entities.
- An entity in one space may be related to another entity (or entities) in other spaces by connectors.

¹ The fundamental principle in MST is, according to Fauconnier, the Identification Principle (ID). In fact, any other principles or rules are in some way derived from the ID principle. ID principle consists in the following assumption: “ if two objects (in the most general sense), *a* and *b*, are linked by a pragmatic function $F(b=F(a))$, a description of *a*, d_a , may be used to identify its counterpart *b*” (Fauconnier 1994:3).

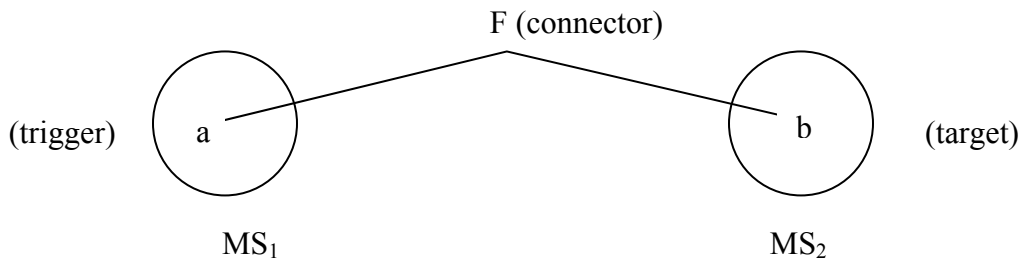
² Space-builders may be: prepositional phrases (in 1990, in John’s mind, in that picture, from his point of view etc), adverbs (probably, possibly, really, practically etc), connectives (if__then, either__or etc), propositional attitude contexts – or belief contexts, in a narrow sense (John believes, Mary wants, Jill thinks etc)

Mental spaces (MS, from now on) are mental constructs (not linguistic structures) set up in any discourse by linguistic expressions. They are cognitive constructions, and they are not defined in relation to the mind, but to the discourse in which they appear. The elements they include³ are used, along with the entire construction – that is the mental space – to refer to real or imaginary (but not possible) worlds. They are conceived of as mental models of the discourse, not as mental models of the world. But the MS are not being referred to, so they are not objects to which linguistic expressions can refer to but rather some kind of “discursive entities” that speakers and listeners set up mentally following the grammatical rules of the language to which the expressions they use belong.

2. Example # 1

In the introductory note to his book⁴, Fauconnier draws the attention upon the major difference between MS and possible worlds. While the latter are nonlinguistic and noncognitive, MS’s status is purely cognitive, and MS are conceptual in nature. Unlike possible worlds, MS don’t exist outside the mind. Possible worlds contain propositions that are considered to bear truth-values in that world, independent on the (natural) language used to express those propositions. I switched from sentence to proposition in order to highlight the logical status of the notion of possible worlds. Possible worlds are sets of propositions, not sets of sentences; therefore they have to have a high logical consistence. On the contrary, MS don’t necessarily have to be logically consistent. MS could account for a situation (which is linguistically described) that cannot be analyzed under a theory of meaning based on the symbol-world relation.

Schematically, the MS and the connection between them can be represented as follows:



Fauconnier exemplifies this connection and the F function in the following sentence:

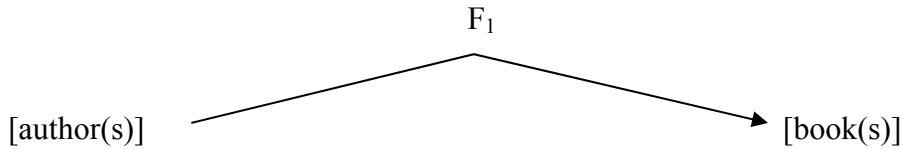
(1) *Plato is on the top shelf.*

What we have here is a function F_1 that links the author and the books he wrote. Thus, $a = \text{Plato}$, $b = F_1(a) = \text{book(s) by Plato}$. Recall the ID principle mentioned above – this allows us to interpret (1) as meaning (2).

³ These elements are quite hard to characterize as Fauconnier doesn’t clearly state what sort of elements MS include, although he writes at some point that they don’t have direct reference in the world.

⁴ From now on, “book” will refer only to Fauconnier, G. (1994). *Mental spaces. Aspects of meaning construction in natural language.* Cambridge University Press.

(2) *The book(s) by Plato is/ are on the top shelf.*



What this example shows us? Not too much, one can say. There is a matter of common sense that a speaker who utters (1) –, unless special time and space conditions are fulfilled⁵ –, means (2). But why is it so? Let's turn the problem on another facet, and try to determine the truth-conditions of (1), in order to grasp its meaning. What the world would have to be like for the sentence (1) to be true? Apparently, the world would like to be the same as for the sentence (2) to be true. How is this possible? One thing one can think of is that “Plato” in (1) doesn't refer to an entity out in the (“real”) world. It refers to an entity in the world as the speaker conceptualizes it, and this conceptualization is in some way transmitted and made accessible to the hearer. Therefore, instead of abandoning the truth-conditional semantics (acting in this way, cognitive semantics would seriously jeopardize its (valuable) scientific contribution to the analysis of sentence meaning), MST (although Fauconnier himself doesn't straightforwardly admit it) places the truth-conditions in the mind of the speaker and of the hearer. MST avoids treating the truth-conditions as belonging to the (“real”) world out there.

The way the conceptualized information is transmitted through linguistic expressions like (1) and (2) is described by the F_1 function. This connector accounts for a shared mental representation of an entity and/or of a (mental) relation between two (or more) entities. One entity is called trigger and it is used to identify the target. These two “objects” – the trigger and the target – belong to different MS; they are “located” and “activated” in two different conceptual structures by the ID principle.

To conclude: why is it possible to interpret that someone who utters (1) meant, in fact, (2)? One possible answer, though not fully explained here: because of the conceptualization process (which Fauconnier tries to describe in terms of MS and connections between MS) specific to human cognition. In order to refer to an entity and to grasp its meaning (in a sentence), one has to conceptualize that entity. Suppose a sentence like

(2) *Plato is in the kitchen.*

is uttered by a speaker S to a 5-year child who doesn't have the concept of “Plato”. How would the child interpret (3)? Certainly, not as meaning (2). Probably, he wouldn't be able to interpret it at all. In his mind (supposing he knows what the existence relation is, and the concept of “kitchen”), (3) would be represented as $[\exists? (? , \text{in the kitchen})]$. “?” could mean (almost) anything to the child. What is relevant for the problem discussed is that the child could not refer to anything by “?”. In fact, he cannot point out to anything in his mind or elsewhere by “?”. He cannot do this – refer to anything by “?” – in the context of the sentence (3), because he don't have (yet) the concept of “Plato”. What does

⁵ A speaker S utters (1) somewhere between 427 and 347 B.C. in Ancient Greece.

it take to have the concept of “Plato”, or any other concept? To put it (roughly) into Dennett’s words, to have a concept is to be able to associate, to make connections in the mind. Concepts are some internal labels we apply to the multitude of knots in our memory. This could be a point to receive further attention from the MST theoreticians. Thus, the example (3) shows that in order to be able to use a description of the trigger (in our case, the name of a person) to identify the target (the books that that person wrote), one must have to “know” to whom that name refers. In other words, one has to have the concept of [*name* ?]. Therefore, in order to help the speakers interpret sentences, MST needs that speakers share (some) cognitive background that helps them in conceptualizing different entities. Subsequently, these entities could be thought of as triggers and targets.

3. Example # 2 (referential opacity)

I’ll move on to another example taken from the great mass filling in the pages of the book I am referring to in this paper. But before doing that, I’ll recall the primary concern of MST: to solve (or at least to try) key issues regarding the reference in natural language. In fact, MST tackles partially exploited particular situations in which the problem of reference plays a fundamental role. MS, as we conceptualize them, are used to understand and interpret those particular situations. Here are some examples examined by Fauconnier:

- Belief contexts;
- Counterfactuals and Comparatives;
- Hypothetical situations;
- Movies, plays, paintings, images, fictional situations;
- Presuppositions;
- Future and past situations etc.

Having said this, let’s return now to the problem of reference and the solution that MST proposes for the analysis of belief contexts. I chose one of the classic challenges for both the formal semantics and MST in what concerns the analysis of reference in belief contexts.

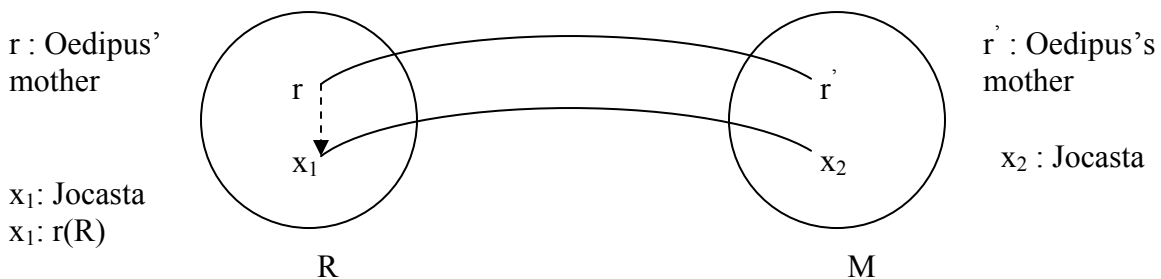
(4) *Oedipus believes he will marry Jocasta.*

(5) *Oedipus believes he will marry his mother.*

We meet here with the notorious problem of referential-opacity that usually characterizes the sentences involving propositional attitudes in which the substitution *salva veritate* doesn’t hold. A scrutiny of the problem will reveal the fact that the two underlined NPs are coreferential. This was the starting point for the analyses proposed by both Frege and Montague. While Frege considered that although, the two NPs refer to the same thing (have the same denotation) they differ in sense, Montague used “intension” to point out to the thing that Frege called “sense”. Therefore, Montague’s semantics accounts for the fact that the two NPs have the same extension – they name exactly the same person, but they do it in different ways. Thus, they have different intensions. Intension is meaning.

In what way Fauconnier's theory differ from the traditional view? First, there is one slight difference in views concerning the information that a sentence carries and the ways in which the language users are retrieving this information. In formal (logical) semantics, a sentence always comes with the full range of its semantic interpretations. These interpretations are specified by grammar, as the semantic features of the sentence are embedded in its syntactic structure. The speakers who use a sentence choose an interpretation out of all its possible interpretations and cancel out the inappropriate ones. However, this is not the idea that Fauconnier has in mind about the semantic interpretation of sentences. According to him, sentences bear incomplete information in their linguistic form. This incomplete information is used by cognitive structures within a certain context for the purpose of meaning construction. Meaning is not something that is directly assignable to sentences. Meaning is something that a sentence reaches after some conceptual operations are performed. Sentences, Fauconnier notes, instead of a full range of semantic interpretations, occur in contexts where they display a fixed number of readings.

Let's turn back to the examples (4) and (5) above. Fauconnier discusses the sentence (5), and generally characterizes it as a case of referential opacity that involves an explicit linguistic marker (the verb of propositional attitude), an explicit description (his mother) and a fixed number of readings. How can one determine this fixed number of readings? It seems to depend on the number of available MS and of available connectors.



Thus, (5) will be interpreted, within MST, as follows:

- a) "Oedipus believes" is a space-builder and it sets up a space M (in R, name it "speaker's reality");
- b) Predication P stands for "he will marry";
- c) "his mother" corresponds to the role⁶ r in R with counterpart r' in M.

Now, assuming that he and his are coreferential with Oedipus, (5) includes "his mother" which is a linguistic description of r, of r', and of r(R). By the government of the ID principle, this linguistic expression must identify an element in M. Thus, there are only three possibilities:

<i>his mother</i>	describes	identifies	
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⁶ According to Fauconnier, NPs "have many features suggesting a treatment in terms of functions (roles) rather than in terms of direct reference" (Fauconnier 1994:39).

1	r	r	Counterpart of r in M
2	r	r	Direct description
3	r (R)	x_2	Counterpart of x_1

The first two possibilities fold one into another. Consequently, there is only possibility no. 3 that makes a difference and entails two possible readings of (5) relative to space M.

(6) $P(r')$ (attributive and opaque reading): Oedipus believes he will marry someone who turns out to be his mother (and his wife, at once).

(7) $P(x_2)$ (referential and transparent reading): Oedipus believes he will marry Jocasta whom the speaker describes as “his mother” inappropriate in M.

This is Fauconnier’s own way to look at the referential opacity as displayed in (5). Of what consists the contribution he makes to the problem of reference? Apparently, MST seems to propose a different sense of what we call reference. In order to treat of reference, MST uses some elements that are set up mentally and identified by language forms. These language forms do not refer to such elements. Here is where reference comes into play. The central point is that we make connections (which Fauconnier calls blending) between spaces (between mental structures built up in our mind by the linguistic expressions used in discourse). Following this route, the reference will go from the elements in MS to the objects referred to (Fauconnier 1994). These objects whose substance is not clearly pointed out (those couldn’t be elements in the mind – is hard to believe that one could refer to any objects in the mind), have to have a place the world as the language user(s) conceptualizes it.

To conclude, we ask ourselves where this discussion leads us. Fauconnier suggests, as shown in (7), it leads us to reading (5) in a transparent way. Sentences similar to (5) carry incomplete or insufficient information within their linguistic form (their syntactical structure, namely). Therefore, in order to interpret sentences like (5), the speaker has to search for adding information and he can do this by processing new conceptual structures (i.e. MS). These conceptual structures arise through conceptual operation like conceptual blending or conceptual metaphor. As result of these processes, the speaker reaches the point where he can grasp the meaning of the sentence. This is represented by the two readings $P(r')$ and $P(x_2)$. In what consist $P(r')$ and $P(x_2)$? Fauconnier believes that the two consist in mappings that link R to M.

Mappings between mental spaces are the core elements of Fauconnier’s theory and of the recent developments in mental spaces semantics. According to Fauconnier and his colleagues, meaning is not something that speakers assign to sentences they use. Meaning is something that is being built in discourse by the linguistic expressions the speakers use (Fauconnier 1997, Fauconnier & Turner 2002). Therefore, each expression has a potential meaning that is generated as the conversation is carried on. Meaning construction is a human cognitive faculty that consists in mappings between spaces. These mappings are made possible by the application of The ID Principle and they lead to blending between spaces. Blending and conceptual integration play a decisive role in the building and the maintenance of discourse coherence.

4. Conclusion

These are only two of the multitude of examples that Fauconnier analyzes in his book. Unfortunately, he seems to leave many of them partially explained which might cause inconveniences to those interested in understanding the leading principle of his approach. This uncomfortableness is amplified by the fact that he focuses (mostly) on unusual (strange) cases of reference such as (1) or even more obvious illustrations:

(8) *I am the ham sandwich, the quiche is my friend.*

(9) *If Romain Gary is Emile Ajar, he's very clever.*

Fauconnier's theory may seem not very convincing, but in the light of the ongoing research and findings in cognitive science, it might give rise to some interest.

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