

DE RE/DE DICTO: A SEMANTICS OF BELIEF SENTENCES

KATARZYNA JASZCZOŁT

St. Hugh's College, Oxford

1. Referential Ambiguity

1.0. What are *propositional attitudes*? They are attitudes, like those of fear, belief or assumption, towards a certain entity expressing a state of affairs. They were usually understood as attitudes towards a *proposition* or, sometimes, to a *sentence*.

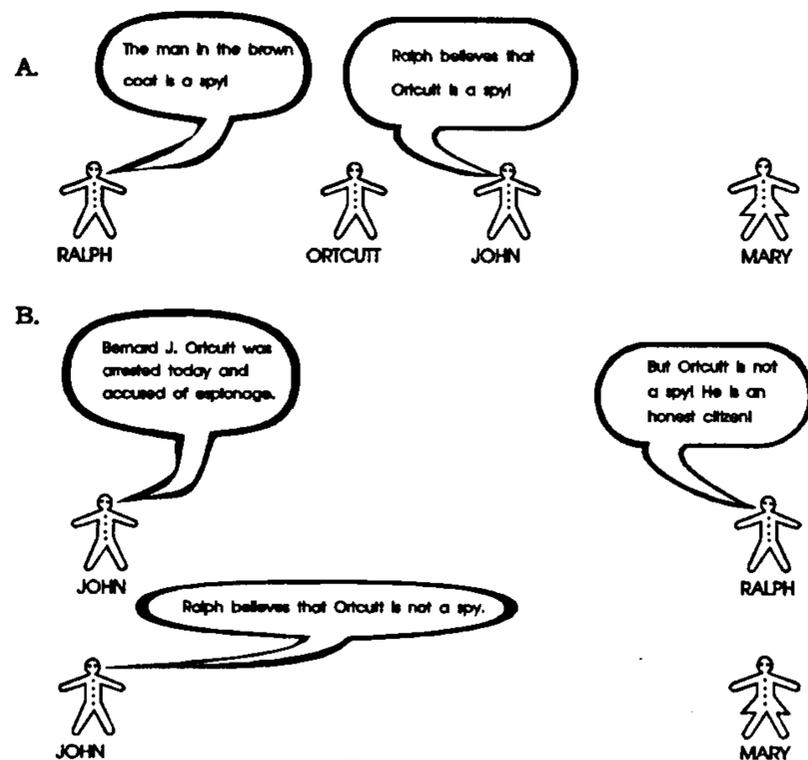
Attitudes, in their simplest form, are expressed by a sentence consisting of a subject, attitude verb and a *that*-clause, i.e. a sentence of the form "A believes that ϕ s". An attitude verb can be either *factive* or *non-factive*, and consequently attitudes are divided into factive and non-factive. Factives are verbs taking a complement clause in the case of which it is presupposed that the proposition the clause expresses is true. "Know" is an example of a factive verb. Non-factives do not demand that the proposition expressed is true. "Believe" and "think" are examples of such non-factive verbs. Moreover, "wish" and "hope" are sometimes called *contra-factives* or *counterfactives*, since they may be said to presuppose the falsity of the expressed proposition. We shall remain within the binary distinction mentioned above.

A *proposition* as an object of attitudes can be defined either (1) a state of affairs, (2) a sentence, (3) sentence meaning, (4) sense in Fregean terms (= sense-vs. reference), (5) mental representation, or (6) a set of possible worlds, not that this list is exhaustive. It is usually assumed that propositions are constructs made up for semantic purposes. In the case of propositional attitudes, we can say that a proposition is what the embedded sentence contributes semantically to the whole.

As to the nature of a proposition, we can assume that a proposition is constant, eternal and thus that it cannot vary in its truth value at different times and locations. Hence when a sentence such as "Smith is sleepy" occurs on two different occasions, it has to express two different propositions. The piece of information (or: thought) conveyed by this sentence consists here of both this sentence and the time and place specification. We could also accept the opposite standpoint, namely that a proposition bears no relation to the time and place specification.

This view, however, apart from being counter-intuitive, would create unnecessary difficulties with natural language constructions and their logic. In fact since Frege introduced it, most types of semantics consider the time, place and context relativization an essential part of the content of a declarative sentence.

1.1. What does the problem with propositional attitudes depend on? First of all, let us argue that the meaning of an attitude sentence can be learned from the meanings of its structured parts; therefore, it involves the *principle of compositionality* and the assumption that the meaning of attitude verbs is created by the proposition expressed, plus the meanings of the separate parts of a sentence that expresses this proposition. The actual problem arises out of a factual mistake, that is the mistake of the observable facts. Let us imagine a pair of situations:



John's statements are, in A and B, respectively:

- (1) Ralph believes that Ortcutt is a spy.
- (2) Ralph believes that Ortcutt is not a spy.

Quine's¹ famous character, Bernard J. Ortcutt, seen at the beach, is believed by Ralph to be a spy. But this is how we see it; Ralph may not know his name; he sees him and utters or holds a belief that "that man" (pointed at) "is a spy". Simultaneously, he still holds a belief which is expressed by saying: "Bernard J. Ortcutt is not a spy". What is expressed in both cases can be stated as: "Ortcutt is a spy" and "Ortcutt is not a spy", which looks contradictory and inconsistent.

¹ Quine 1956.

We can believe both, as long as *we do not realize that these two names are coreferential*. Or we can look at it from another angle: Ralph sees a man once in a brown coat, and once in a grey coat. About the first of them he believes that he is a spy, but simultaneously he believes that the other is not, not knowing that in fact it is the same man, Bernard J. Ortcutt. Here he holds two beliefs *de re*. The problem to be explained is how to report correctly on such beliefs, knowing that the substitutivity of the coreferential expressions does not hold here, namely that we could not say: "Ralph believes that the man in the grey coat is a spy" although the man in the grey coat is the same as the man in the brown coat.

When we have two situations (A) and (B) together, we can say that Ralph has *two de re beliefs* about Ortcutt.

If we do not know what he believes about Ortcutt, we can substitute "Ortcutt" for "the man seen on the beach", thus ascribing our own assumptions as to the identity of the man to the holder of the belief. This paraphrase of a belief sentence will be referred to as *de re reading*, or the *referential*, the *transparent* one, as opposed to the *de dicto reading*, or the *non-referential*, the *opaque* one, not necessarily picking out any individual. We shall agree on the meaning of the *de re/de dicto* distinction according to which in the *de re* reading the description (name) refers to the thing in the actual world, whereas in the *de dicto* case the description (name) itself of the object referred to matters too; it may refer to the actual object or to the thing mistakenly taken by somebody as this object.

The distinction as such comes from medieval logic and was originally applied to modalities. When modal terms (*it is possible, it is necessary...*) apply to the subject and its possessing certain attribute, the modality is called *de re* ("concerning the thing"). When the modal term applies to the whole statement (proposition), the modality is called *de dicto* ("concerning the statement"). When we think of a sentence "The number of planets of our solar system is necessarily nine" as of a *de re* one, this sentence is true, because it amounts to saying "nine is necessarily nine". However, on the *de dicto* reading, it is false: it is not true that such a statement is necessary. The existence of *de re* modalities is connected with the position of *essentialism*, i. e. the view that some objects have certain essential properties without which they would stop being the things they are. And, after all, *de re* solution remains valid even if we know that Ralph holds two contradictory beliefs.

1.2. Now we can enumerate some difficulties involved in providing the semantics for propositional attitude constructions:

- (1) to specify the relation between the embedded sentence and the whole attitude construction. It has to be decided whether there exists a logical or semantic connection between the contents of an attitude and the attribution of this attitude.
- (2) to find out what the reference of the terms used in an attitude report depends on; or, in other words, whether the embedded sentence should be understood

in relation to the reporter or to the holder of the attitude. But before that, we have

- (3) to make an assumption as to whether the holder of an attitude must know to whom he is referring. Here we may have to distinguish two cases, namely these of proper and common names. If, after Donnellan, we answer “no” to this question (in the case of proper names or also in any of these two cases), then we have to ask: “What would the speaker be attributing that predicate to on this occasion?” rather than look for the unique referent for a name. On the other hand, a positive answer would, obviously, alter the pattern for attitude reports. Another problem is
- (4) to see to what extent the uniformity across attitude verbs can be drawn as far as the sought conditions for attitude ascription are concerned.
- (5) to find some uniformities or conditions for ascribing attitudes, prior to providing the semantics for these constructions.

Coming back to the situations A and B, after Hintikka (1962), Montague (1970), and others we assume here a *requirement of consistency of a person's beliefs*. Consequently, we can say that Ralph simply does not know that he refers to the same individual in both judgements. As some followers of possible worlds semantics would explain, the “modes of individuation” of the individual may differ in these two cases, or, in other words, whereas in the situation A Ralph perceives the object of his belief, in B he may only know its description.

Our aim is to find the *criteria of correctness* of such a report, i. e., decide when it presents truly the belief as expressed by a person. And how to give account of our taking a *de re* belief *de re* when the way we pick out the individual differs from the way the holder of a belief picks it out. And in order to do so, it is necessary to provide semantic description of belief constructions and thus answer the question what is customarily taken as their default reading. This can be done with a help of contrastive study.

1.3. As to the framework of the analysis, it is generally the one of possible worlds semantics. And this is how the problem of propositional attitudes can be formulated within possible worlds semantics: first of all, the meaning of a sentence is the set of those possible worlds in which this sentence is true. And two sentences have the same meaning if they are true in the same set of possible worlds. Consequently, it looks like it that a person holding an attitude (and, in our case, a belief) to what is expressed by one such sentence, should hold the same attitude to what is expressed by the other one. However, there are numerous examples contradicting this thesis.

Before passing to the history of the puzzle in modern logic, it is necessary to clarify some more terminology. First of all, the problem with contextual substitutivity discussed here has to be distinguished from that of substitutivity *salva veritate* (i. e. “preserving truth”). Whereas the second one is inner-theoretic and concerns the substitutions of expressions which refer to the same object, the first is

an observational problem and concerns the explanation of how people report on one's attitudes by ascribing the referent to the holder of an attitude; the question of coreferentiality is thus not decided. The contexts in which substitutivity *salva veritate* fails are called *opaque (intensional)*, whereas the ones where it works are *transparent (extensional)*.

Frege's distinction between sense and reference was very useful in developing the concepts of *extension* and *intension*, although not without important differences such as that sense determines reference independently of matters of fact. The original compositionality principle, saying that the reference of an expression is a function of the references of the names constituting it, does not seem to work in the opaque contexts. The oblique reference of a name is its ordinary sense and the oblique reference of a sentence is a thought, i. e. its ordinary sense too.

Carnap's² extension/intension distinction seems to be applicable to both kinds of contexts, although it does not solve the problem of substitutivity within the opaque one either. He remarks that if we take a sentence “John believes that...” and replace the sub-sentence by another one, equivalent to it, the whole sentence can change its truth value; it is neither extensional nor intensional in relation to its sub-sentence. Therefore Carnap put forward a hypothesis of a “first approximation to a correct interpretation of the belief-sentence”. A sentence:

“John believes that D”

can be reformulated as:

“John is disposed to an affirmative response to some sentence in some language, which is L-equivalent to ‘D’”,

or:

“John is disposed to an affirmative response to some sentence in some language which expresses the proposition that D”.³

He argues that the concept we need here is the *intensional structure*. Two concepts are *intensionally isomorphic* (or: have the same intensional structure) when they are formed in the same way on the basis of designators and any two corresponding designators are L-equivalent. What a statement in indirect speech usually contains is an expression synonymous to the original one, preserving its meaning. To preserve this meaning, the intensionally isomorphic expression can be used, and, moreover, we must state that the speaker is “disposed to an affirmative response” to this sentence. My methods of identification of an individual will correspond roughly to those of Hintikka; knowing a person as such equals a *perceptual* method, whereas holding a belief *de dicto* about him/her corresponds to the *descriptive* method.

² See Carnap 1956

³ Cf. *ibidem*, p.55.

There is an interesting claim by Barwise and Perry (1983) that would be worth developing, namely that the attitude report refers to a **name**, not to an **individual**, as it was in Frege's and other approaches. This claim could explain our difficulties with the substitutivity. However, epistemologically, it would be difficult to justify. Belief, being closely related to knowledge (as, let us say, its "weaker" form), is difficult to be seen as having "names" as its objects. We have certain information concerning individuals, objects, possessing concepts and names corresponding to them. However, belief seems to be broader, not confined to named concepts only; we can possibly hold an attitude having a notion, a concept only in our mind. Therefore, this path will not be followed as a solution.

1.4. Looking at our situations A and B from another perspective, we may assume, after Johnson-Laird (1983), that sentences refer to *mental models* instead of referring directly to the objects of the world as it is in possible worlds semantics. These models can be seen as merely theoretical constructs and then the problem of ontological commitment does not arise; they may help to describe intensional contexts, without constituting a part of psychology of cognition. But the question arises whether we need this intermediate stage of mental models between the linguistic structures and real world referents.⁴

Mental models will be allowed to relate to reality to some extent; namely, as long as the *categories* of the real life and the mental ones are compatible. And they are to some extent, since they are said to be created by grouping the items (verbs, nouns, etc.) around one *prototypical instance*⁵. As to the truth conditions for the belief constructions, we take it that no absolute truth (or: correctness) can be assumed in the case of these sentences for the reasons mentioned above; that is, for instance, that we may mean something other than it would be "objectively" understood or that the believer meant something different from what we thought him to mean. Therefore we need two "interpretive" points of reference here: reality (and the speaker's mental space) on the one hand, and the social conventions of language use on the other, in order to assign truth-values to utterances. Here grammar alone is of no help.

1.5. The next possible source of disambiguation of attitude constructions is the analysis of non-linguistic actions. As Stalnaker puts it,

"To believe that P is to be disposed to act in ways that would tend to satisfy one's desires, whatever they are, in a world in which P (together with one's own beliefs) were true."

Stalnaker (1984:15).

⁴ We could also relegate the problem to Fodor's representations as an alternative route: Fodor tries to explain propositional attitudes by

"...providing, for each propositional attitude, nomologically necessary and sufficient conditions in terms of computational relations between the organism and formulae of the internal representational system". Fodor (1975:77).

But, in fact, no disambiguation is reached in this way.

⁵ Cf. Langacker 1983.

However, Stalnaker adds a supplement to the statement cited above; he claims that the events and states that tend to cause our belief contribute to what this state of belief represents no less than the behaviour caused by it does:

"We believe that P just because we are in a state that, under optimal condition, we are in only if P, and under optimal condition, we are in that state because P, or because of something that entails P."

Stalnaker (1984:18).

This way he wants to give an account of the relation between a belief and the world and also the distinction between belief and other mental (*representational*) states.

Analysis of causation has a limited explanatory power; when we think, for instance, of the reasons for somebody's opening an umbrella, kneeling in a church, etc., we can see that not only the standard explanations are possible. In other words, we cannot, with absolute certainty, ascribe a belief such as "X belief that it is raining" in the first case since there may be some other reasons for such a behaviour. And this shows that our sources of information such as language constructions, background knowledge, mental processes, and actions must be all incorporated in the study of belief ascription.⁶

1.6. The four sources of information for attitude ascription have thus only limited power; neither of them seems to be sufficient to disambiguate an attitude statement or to allow for a report with an absolute certainty of being correct. Linguistic and non-linguistic actions are subject to different kinds of errors, so are our memory and background knowledge, being affected by various inner and outer factors. Therefore, any ascription of attitude must be regarded as adequate *to a degree*, at least as long as there may be some hidden factors not accounted for in making our statement of report.

2. Arguments From Contrastive Study

2.0. A powerful source of information for disambiguation of the attitude sentences is translation. There are inevitably certain differences in meaning between most sentences and their translations into another language; the best evidence for this claim is that there can be, in many cases, several translations of one sentence and all of them can be equally correct. It is worth analysing in the example of English and one other language, whether there are any language-dependent features of belief sentences which cannot be accounted for in a universal way. This information may prove to be helpful in constructing the conditions for correct belief reports.

Following Quine, we can begin the analysis with a sceptical view on translation; he holds that meaning is said to be preserved in a translation only because of the prior acceptance of a "translation scheme"; without it we would not be able to

⁶ For the interrelations between and ordering of these sources see also Jaszczolt (in progress).

talk about any relation between meanings. But since there can be many such translation strategies, we are left with the *indeterminacy of radical translation*.⁷ And, we can presume, this indeterminacy concerns both words and sentences, including propositional attitudes. In other words, when we want to report on somebody's attitude (belief) in a language different from that in which it was expressed, we have to follow one particular strategy of translation, hoping that this is the common and universal one and that the existence of other strategies can be neglected in communication since everybody else follows the same one as us. In practice, it means that translation is virtually impossible. Although for Quine this was a theoretical problem and his theory is applicable to the analysis of knowledge, we mention it here, against Quine, as a methodological option in the analysis of the natural language. Since Quine does not claim that we need any special level of language for expressing theories, we shall assume that it is not, in fact, so much *against* Quine to utilize this theoretical claim.

Quine thinks of beliefs as of attitudes which are primarily attitudes to a *sentence*, i. e. they are relative to the particular language of the holder of the belief. We followed the opposite view, namely that we hold attitudes towards a proposition, i. e. the entity which is language-independent.⁸ The existence of this independent, underlying level of propositions as objects of attitudes would rule out any further complications of language dependence: all we would have to do would be to find a sentence in our language which expresses the same proposition as the believer's sentence and use it in our report. This strategy, however, has to be justified.

Quine's thesis should not, in fact, be put to an empirical test. If it is questioned at all, it is questioned on a theoretical level. We can, for instance, argue that the way we group concepts into categories differs across languages and therefore there is no translation possible. This claim is "less theoretical"; it concerns language of everyday conversations.

The opposite view is represented, for instance, by Lakoff's hypothesis of the Idealized Cognitive Models. He puts forward a presumption that language uses general, cognitive categorization mechanisms. We organize our knowledge on the basis of special structures, called idealized cognitive models (ICMs) which are language independent. Categories are characterized by such cognitive models.⁹ Since these categories of the mind can fit the categories of the external world¹⁰, that is an objectively given entity, objective knowledge is said to be possible and thus, presumably, Lakoff would approve of the thesis of the possibility of a radical, unique translation and of a possibility of an account of truth.

⁷ Cf.: "...manuals for translating one language into another can be set up in divergent ways, all compatible with the totality of speech dispositions, yet incompatible with one another."

W.V. Quine (1960:27).

⁸ For obvious reasons, Quine's understanding of the word *proposition* will differ from ours; level of language-independent propositions will not exist there.

⁹ There are four types of them: propositional, image-schematic, metaphoric, and metonymic model. See Lakoff 1987.

¹⁰ or: "preconceptual structure". See *ibidem*, p.303.

These two answers to a theoretical problem of translation (although not exposed to the same extent in both theories) exemplify two possible standpoints and show that there is no uncontroversial treatment of this issue possible. Nevertheless, within our semantics, we can proceed with analysing the sources of information for the belief reports assuming one of these possibilities; our choice has to be to reject Quine's indeterminacy and accept, like many others, the similarities across languages as a starting point since we already argued for the "existence" of the underlying level of propositions as common meaning of sentences (or, in other words, that different sentences can have the same meaning, although here not all opponents of Quine would be unanimous).

In order to support our standpoint that there is a common level of propositions for the equivalent expressions in different languages, it is worth mentioning that Putnam regards stereotypes and core facts as constraints for translation; the more such constraints available, the more unambiguous the translation becomes, leading in effect to a unique one. Since the stereotypical meaning of a word must be known in order to use the word correctly, there are thus some limits on the divergence of the possible translations. These limits (constraints) are therefore extra-linguistic ones and they concern reports on beliefs as well as any other constructions of the language, as long as proper names (i. e. the "Orcutt" difficulties) are not involved.

Therefore, although we agree with Carnap and many others that in natural languages words have more than one intension, there seems to be a way out: we have to know a stereotype and thus know what we speak about, ignoring other parallel meanings the term might have. And the translator usually does have access to such a disambiguation. Similarly, in the case of proper names and definite descriptions, our four sources of information equip the attitude attributor with enough disambiguating information to proceed with the task: having considered all possible clues, *we know who/what we talk about*.

2.1. The negative practical conclusion that can be drawn from the analysis of translation is that the reports on attitudes differ from language to language and the general conditions we noticed may be the only ones available. However, we shall try now to utilize the analysis of reports on beliefs formulated in another language to the analysis of English ones; namely, we shall try to see what distinctions between reports (and where and when) Polish language makes to avoid referential ambiguity.

The fundamental difficulty that is usually observed in reported speech contexts is that it lacks certain linguistic and extra-linguistic means of conveying a message. It reports about the events, not being a part of them itself and therefore, being more objective, it provides less information than the direct speech which reflects the feelings, personality and mood of the speaker. Reported speech is usually regarded as **referring only to the reporter**, his view on the event and utilizing expressions from the vocabulary he normally uses.¹¹ The account of what is referred to in these contexts is, for obvious reasons, insufficient; we must refer to someone's

¹¹ see Bąk (1977:465) and Doroszewski and Wieczorkiewicz (1959:290-291).

beliefs and, consequently, to what is believed to be true.¹² Moreover, languages can vary as to the degree of discrepancy between direct and indirect speech; one of such comparable factors can be the number of possible complementizers used in attitude contexts where they are not complete synonyms; each of them conveys certain additional information as compared with the basic complementizer "that".¹³ Whereas Polish makes use of a few of them (namely, *że*, *aby*, *żeby*, *aż*, *jakoby*...), there is only one equivalent *that* in English and the additional information has to be added descriptively. To a great extent the differences between the Polish complementizers are regional variations or historical variations, i. e., for instance, *iz* is an older version of *że*, replacing it in nearly all types of contexts. However, all these forms still remain used in the present state of the language. The complementizers *aby*, *żeby*, *jakoby*, *by*, containing the mood maker *by*, are conspicuously different (for other than historical reasons) in their function from the others. Syntactically, they even introduce different types of phrases. We shall say more about these differences in the following paragraphs.

2.2. As far as the method and framework of this contrastive analysis are concerned, we shall accept that of the contrastive theoretical studies.¹⁴ In other words, we shall investigate how a universal category is realized in both languages, rather than assuming one of these two languages to be a starting point. These contrastive facts seem to be useful since it is difficult to give the solution to reports on beliefs without also having the evidence from a language other than English. However, since all we need is the comparison of the ways belief reports are made in Polish and in English, we shall not assume any particular syntactic theory to do so; syntactic properties of belief sentences are of no interest here. The comparison will be performed within the same semantic framework of the truth-conditional, possible worlds semantics and the sentences will occasionally be translated into the λ -categorial language, as presented by Cresswell¹⁵. We shall make use here of Frege's compositionality principle and its difficulties of application in belief contexts.

¹² See Kalisz (1989:41) for the discussion on meaning as "meaning to someone" and truth defined in terms of understanding. Kalisz presents in this article an interesting comparison of Polish and English *illocutionary acts*, coming to the conclusion that the pragmatic analysis alone, not supported by evidence from syntactic structures, sociolinguistics, etc., is not worth performing since it does not reveal much information. See *ibidem*, p.51.

¹³ It is worth noticing that certain English sentences of the kind considered by us do not allow for the omission of "that": "I believe he'll do it" is a correct sentence, whereas *"I disbelieve he'll do it" does not seem to be one, neither does *"It is inconceivable he meant it". Bolinger (1972) observes that negative sentences of this type require the existence of the complementizer *that* and calls this phenomenon a *negation-effect*. We could, possibly, argue that this phenomenon is comparable with using subjunctive in such constructions by other languages and, in particular, we could compare it with Polish *że+by* complementizer including a mood maker which occurs only in negative constructions, no matter what kind of negation it used. However, the correct explanation may as well be of a completely different nature, namely preserving "that" may be connected with the intention to preserve the clarity of the sentence, etc. And thus this observation seems to demand a separate study and support.

¹⁴ i.e. language independent studies. See Fisiak *et al.* (1978:10).

¹⁵ Cresswell 1985.

However, since what we need is a linguistic theory taking a text rather than a sentence into account, many difficulties will still remain unexplained.

It is sometimes claimed that the taxonomy of contrastive studies should be based on specific linguistic models and, moreover, it is sometimes added that any model can be used; some of them are more suitable than others.¹⁶ This claim seems to be plausible. We shall perform our analysis using the λ -categorial language, i. e. within the categorial grammar and the type of semantics mentioned above. It has also to be noted that there are various taxonomies of contrastive linguistics and saying that we work within the theoretical framework may not prove to be sufficient. Krzeszowski neglects this distinction into theoretical and applied studies altogether, saying that what matters is the difference between the *text-bound* and *systematic* contrastive studies. We do not accept it since the first seems to be more a part of the second than a separate study. However, adding the contrastive analysis of texts allows us to enrich the levels on which we can speak about equivalence between languages; the semanto-syntactic one can be compared with the statistical one and maybe also, on different grounds, with the pragmatic one.¹⁷ And since we accept that our evidence may come from outside the language as well, we shall agree that such levels of comparison of languages may turn out to be fruitful.¹⁸ In this analysis we shall concentrate, however, on the semanto-syntactic equivalence.

Equivalent sentences (in this sense) are those which, apart from "expressing the same thing", have the same semantic structure. One of the main tasks will thus be to check whether Polish and English constructions of belief reports (as reporting on the equivalent events) are really equivalent. And, again, the main difficulty will be created by the use of different complementizers and thus relating the truth of the report either to the reporter or to the holder of the belief.¹⁹ In semantic analysis, it will correspond to obtaining different structures and different dependencies between the constituents of the sentence.

Generally, there are different kinds of differences between equivalent structures of two different languages. We can enumerate them²⁰ as follows:

- (1) structural differences (e. g. SVO versus subjectless construction)
- (2) categorial contrast (e. g. N, V, *Adj* versus N, V, *Adv* construction)
- (3) functional contrast (e. g. subject noun phrase versus direct object)

¹⁶ See Krzeszowski (1989:59).

¹⁷ for the terminology see *ibidem*.

¹⁸ Krzeszowski distinguishes seven types of equivalence. For the full taxonomy see *ibidem*. Texts are called pragmatically equivalent if they "evoke maximally similar cognitive reactions in the users of these texts". Krzeszowski (1989:65). However, this type of equivalence accounts for performance rather than competence and therefore is not analogous to the semanto-syntactic one. See *ibidem*, p.66.

¹⁹ the last case would be, for example, when John reports: "Ralph believes that Orcutt is a spy" not knowing himself who Orcutt is.

²⁰ after Fisiak *et al.* 1978.

(4) difference in word order (e. g. SVO in English versus also possible OVS, VSO in Polish, since case endings mark the syntactic functions).

These differences will also occur in the attitude constructions in *that*-clauses.

First of all, we can observe that Polish *że*-clauses occur more often, that is in more types of constructions than their English counterparts. Namely, sentences such as:

- (6) a. I believe Ortcutt to be a spy
 b. I believe that Ortcutt is a spy

and maybe also:

- c. I believe in Ortcutt's being a spy

have only a *że*-clause equivalent in Polish:

- (7) Wierzę, że Ortcutt jest szpiegiem,

since there is no ACI (accusative with infinitive) construction in Polish and since (6c) sounds very awkward:

- ?(8) Wierzę w Ortcutta bycie szpiegiem.

Moreover, there is a *żeby* complementizer in Polish, composed of *że*, a clause complementizer, and *by*, the mood maker. It is followed by an infinitive only in the purpose clauses and adjective phrase complements.²¹ In belief constructions, where *żeby* occurs only in negative sentence, it is followed by a non-infinitive clause using a subjunctive verb form:

- (9) Nie wierzę, *żeby* Ortcutt był szpiegiem

as an optional form of:

- (10) Nie wierzę, *że* Ortcutt jest szpiegiem
 (I do not believe that Ortcutt is a spy).

As it will be proved by the syntactic analysis, the use of subjunctive in Polish is strong evidence that the attitude is not held to a sentence as such but that it is rather held to the separate constituents of this sentence. In other words, the speaker of (9) does not have to know who Ortcutt is, the clause as such does not have very strong links with the main one, as it will be proved using λ -categorical language on the following pages. Unlike in (9), (10) is likely to involve the acquaintance with the object of belief. In (9), the speaker may merely mean that he does not believe that it is Ortcutt who is a spy since he believes that it is Smith

²¹ for examples see *ibidem*, p.151.

who is one and he can be acquainted only with Smith. The existence of (9) makes the ambiguity of its English translation even more conspicuous.

It is also worth mentioning that whereas in English *that*- complement can nearly always be omitted (except the cases when it occurs at the beginning of the sentence and after "The fact (that...)"), in Polish it can be omitted only before mood maker as in:

- (11) Nie wierzę, (*że*)*by* Ortcutt był szpiegiem,

which again shows that this type of clause is not as strongly connected with the main one as the (10) one.

Another difference is constituted by the means of topicalizing the complement; there is no passive of "believe" in Polish and consequently no equivalent of such constructions as:

- (12) Ortcutt is believed to be a spy (by Ralph)
 (*Ortcutt jest wierzony być szpiegiem przez Ralfa).

The complement noun phrase can be topicalized in Polish by moving to the initial (not subject!) position this way:

- (13) a. O Ortcutcie Ralf myślał, że jest szpiegiem

or:

- b. To o Ortcutcie Ralf myślał, że jest szpiegiem,

implying simultaneously that it is Ortcutt (and not Smith) who is actually a spy. These sentences of (13) use a verb "myśleć" ("think") rather than "wierzyć" ("believe"). In the latter case any topicalization would look much more awkward.

Coming back to Polish *żeby* (or, alternatively, "jakoby", "by", "aby"), we can see that there is another reason, apart from the opacity of reference, why Frege's compositionality principle would not hold. The belief sentence in isolation:

- (14) *że* Ortcutt jest szpiegiem
 (that Ortcutt is a spy)

differs in form from the embedded one in (9):

- (15) *żeby* Ortcutt był szpiegiem
 (subjunctive).

It does not mean that the translatability of the *że*-complement belief sentence is easy as opposed to the *żeby*-complement one; they are more or less equivalent in Polish and are both equally well represented by the English *that*-complement belief sentence, both being referentially ambiguous, although the *żeby*-complement one (i.e. (15)) would tend to be, in most cases, the *de dicto* one, that is not ne-

cessarily involving the fact that the speaker knows Ortcutt as a person and thus could not refer to him by any other name.²²

Frege's principle will thus be useful for the simple cases such as (14), becoming invalid, although not any less useful, in the indirect constructions such as our belief expression (15) and mainly belief reports. It is still useful since it shows precisely what regularity occurs and where to find it.²³

Let us try to say then what the best translation of belief sentences involving (15), that is for instance (9), would look like. We can presumably translate (9) descriptively, as, for instance:

(16) I do not believe that a man called Ortcutt is a spy,

as opposed to:

(17) I do not believe that Ortcutt could be a spy;

(18) I do not believe that it is Ortcutt who is a spy;

or:

(19) I cannot believe that Ortcutt could be a spy;

etc., which have a very strong *de re* meaning. What is interesting is that it is not the complementizer that triggers these differences; these sentences could hardly be regarded as synonymous with the simple translation of (10), whereas (9) and (10) are very close equivalents, with only a slight prevalence of the *de dicto* reading in the first one. Consequently, a third person belief sentence (a report) such as:

(20) Ralf nie wierzy, żeby Ortcutt był szpiegiem

would be required after the suspected *de dicto* belief or, rather, in the case of no *de re* acquaintance with Ortcutt on the part of the reporter, but never the cases where Ralph's belief concerns Ortcutt (*de re*), although the name he uses may be Smith. Then a simple *że*-complement belief report would be more appropriate, although referentially ambiguous, as opposed to (20).

Moreover, we can observe another difference between English and Polish belief sentences. In a pair of sentences such as:

(21) a. John believes that Ortcutt is not Ortcutt

b. Jan wierzy, że Ortcutt nie jest Ortcuttem,

²² To compare, subjunctive in German (and also in English realized as past tense constructions such as: "He believed that I had *been* to Paris a year before") also seems to signal a lack of knowledge about the referent and the nonreferential use of the verb phrase, thus serving the purpose of creating a distance between the speaker and the statement uttered. See Rundle (1979:166). However, in such constructions, noun phrases are (usually) still used referentially. Usually either the verb phrase or the noun phrase, not both, signal this lack of knowledge. Although Rundle (*ibidem*, p.185) calls it an asymmetry between noun and verb, we can also say that double signalling would be simply redundant.

²³ see also Gibbon 1982.

we use (21b) with the inflected latter occurrence of the name "Ortcutt" as a translation of (21a) rather than:

(21) c. Jan wierzy, że Ortcutt to nie Ortcutt

which does not fully preserve the meaning of (21a) since it is more likely to have the opaque, contradictory reading only.

The conclusion can be drawn that (I) the relation between the main clause and the subordinate one is stronger in English than in Polish²⁴, not to mention (II) the possibility of *that*, -deletion in English whose equivalent produces in Polish a strange construction of:

?(22) Ortcutt, wierzę, jest szpiegiem,

(III) the use of a comma before the Polish complementizers, and (IV) the lack of the sequence of tenses in Polish belief sentences. It is difficult to judge whether, and if so, how it affects the meaning of these constructions.²⁵ Kalisz describes generally these phenomena of Polish *że*-clauses as:

I. higher degree of clausiness, i. e. more independent clause status,

and thus

II. looser degree of integrity of the sentence, i. e. looser clause union with its main clause.²⁶

And this phenomenon is even more increased in the *żeby*-clauses, producing a closed entity hardly undergoing the *de re* reading.

2.2. After all, the differences between belief constructions including *that*-complements and their ability to reflect (to some extent) the *de re/de dicto* preferences are still conditioned pragmatically; a particular report is triggered by such factors as the reporter's system of knowledge and beliefs, the conversation circumstances, the relation between the believer's convictions as to the object and those of the reporter, etc. However, we shall agree with Carnap, as it was said before, that no strict distinction is possible between semantics and pragmatics, descriptive semantics being a part of the latter.²⁷ Consequently, the referential opacity and lack of substitutivity in belief constructions can be regarded as semantic-pragmatic properties. This claim of a unity has an obvious, common-sensible explanation; namely, it is the differences between the belief systems of different persons that cause the

²⁴ cf. Kalisz (1981:26).

²⁵ see also *ibidem*, pp.80-81 for the interesting typology of propositional attitude verbs.

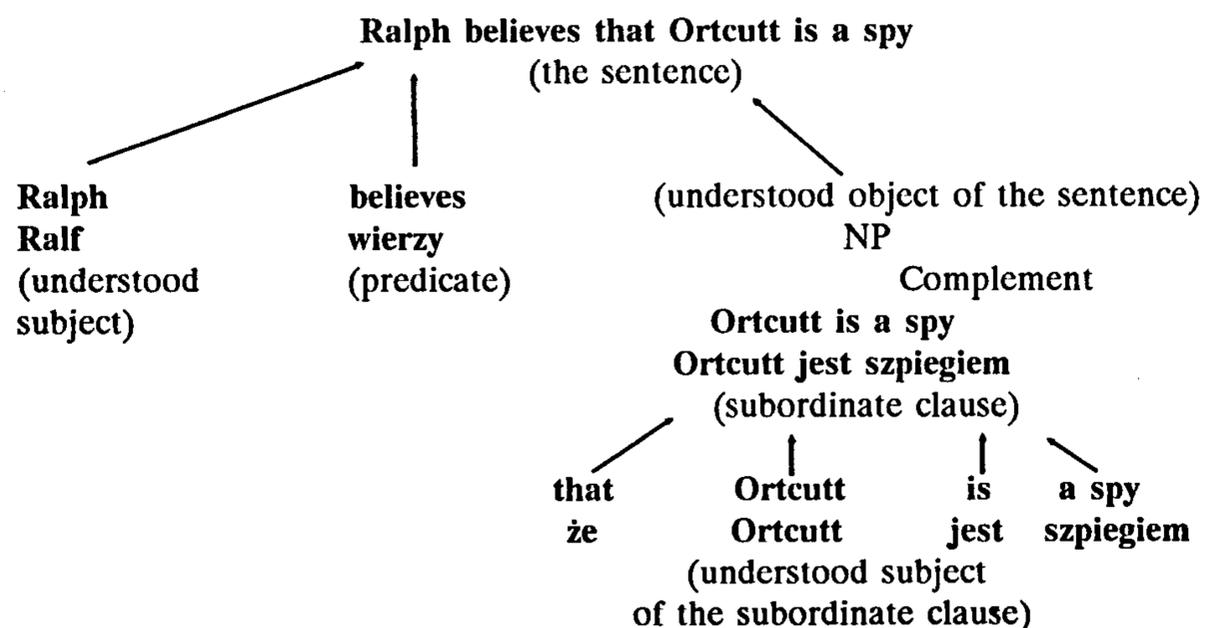
²⁶ see *ibidem*, p.110. Another proof he gives is the application of a transformation into: "Ortcutt is a spy, I believe", as opposed to "Ortcutt jest szpiegiem, wierzę", which sounds strange and relies on a "że"-deletion, very rare in Polish.

²⁷ This claim is often questioned on a different basis, for example that pragmatics gives an account of language performance rather than competence. However, in our analysis we found it necessary, as we said before, to refer to different aspects of language analysis, involving even extra-linguistic sources of information. We shall thus claim that the semantic (or: semanto-syntactic) analysis is only a part of studies comprising also different material and different types of analysis. For the discussion see, for

inapplicability of substitutivity. Simply, coreferentiality may sometimes not be perceived by one of the participants in the general situation of expressing and reporting a belief put together. And thus the truth value of the sentence after substitutivity was applied may vary from the original one. This alteration is sometimes called an alteration "conditioned pragmatically".²⁸

Another feature of the belief contexts noticed by Kalisz²⁹ shows that the verb "believe", as he says, "modifies the proposition"³⁰ in terms of truth and falsehood since it does not imply any knowledge acquisition or perceiving of anything. We can always add, as Kalisz says: "...but it may not be true" to an expression of belief. We shall agree with the "modification of the proposition", but as to the lack of certainty about the state of facts described by this embedded proposition, it will be left without much comment; the nature of belief is such that, for the believer, the real world contains the proposition (situation) expressed and it would not make much sense if the believer added: "but it may not be true"; it is obvious (that it may not be true) for anybody whose system of beliefs differs from this one. In order to see the differences between the integrity with the proposition in English and in Polish sentences, a more detailed semantic analysis of them has to be presented.

The separate clause status is represented by Kalisz³¹ in a relational grammar framework. In our "Ortcutt" example, it would look as follows:



We can see here that the constituents of the embedded sentence do not bear

²⁸ see Kalisz (1981:20).

²⁹ *ibidem*.

³⁰ *ibidem*, p.80.

³¹ after Lakoff. See *Bibliography* to Kalisz 1981. For the structure see *ibidem*, p.38.

any direct relation to the main clause. And the same concerns both English and Polish sentences.

In order to account for any differences, we shall use the categorial grammar and in particular the λ -categorial language as presented in Cresswell 1985. But before we provide the above sentence with a semantic interpretation, a short introduction is required.³²

Sentences, a syntactic category, are equal in this approach with the "well-formed formulae" (wff). Its corresponding semantic category is a proposition which is marked by the symbol "0" used for sentences, since propositions are their intensions. Then building the categorial language goes as follows: "not" is a functor that makes a sentence (0) out of another sentence (0) and thus its category is 0/0; "and" makes a sentence out of two sentences and its category is 0/00. A name is "an expression whose semantic function will be to do no more than denote something"³³; it denotes things and thus is of category 1. Consequently, one-place predicates are assigned 0/1 since they make a sentence out of a name.

In order to make complex predicates out of sentences, the " λ -abstraction mechanism" is needed. Cresswell gives here the following example: if we assume that x is a variable,

$$\langle \lambda, x, \langle \text{not}, \langle \text{whistles}, x \rangle \rangle \rangle$$

is an abstract of "is an x such that x does not whistle". This way Cresswell tries to get rid of the difficulties of the intensional contexts and this solution is performed within the tradition of Montague's intensional logic, although the language of the semantic representation is much simpler here.³⁴

Cresswell says that the whole semantics is referential; there are no *senses* here: values of variables are intensions (references) and the semantics is compositional, taking these references of the expressions into account. This can be achieved since the complementizer *that* may belong to different syntactic categories, depending on how much of the structure of the embedded proposition we have to consider in a given sentence. This claim is made on the basis of the observation that (1) an attitude (belief) is a relation including the meaning, i. e. interpretation of the sentence to which the person stands in this relation, and also that (2) meaning depends on the structure of the sentence.³⁵

³² for a general explanation of how categorial languages work see also Lewis 1970.

³³ Cresswell (1985:96).

³⁴ Moreover, it is worth noticing that according to Cresswell, "...a λ -categorial language is to test a semantic theory, in the sense that if the theory is to be plausible, it must be formalized in such a language".

and also

"In using a λ -categorial syntax we are not claiming that the syntax of a natural language works in just this way, though we are inclined to think that no syntactic differences will prove relevant to our particular semantic problem."

Cresswell and von Stechow (1982:516).
³⁵ see Cresswell 1980 and cf. also Cresswell and von Stechow 1982 for the "topic" and "focus" distinction.

Cresswell calls this ambiguity of reading structural. However, it has to be distinguished from the syntactic ambiguity of scope exhibited by attitude constructions which involve common nouns. The ambiguity analysed here, involving proper names, can be called “structural” in a broad understanding of this term: the difference in tree structure does occur between *de re* and *de dicto* readings, as will be shown on the following pages. But this difference is caused merely by ignoring the relations between the constituents of the embedded sentence in one case (i. e. *de dicto*) and taking them into consideration in the other (i. e. *de re*), rather than being a difference internal to the embedded sentence and occurring between its constituents. Therefore, whether this kind of difference in the tree structure suffices to call the ambiguity syntactic, should be left unanswered: it is a matter of terminological assumption and thus is not worth pursuing. However, as stated before, our preference and choice is to distinguish between scope ambiguities and *de re/de dicto* readings of proper names and not to call the latter syntactic; although the tree structure differs between the two readings, the relations between constituents differ merely with respect to the sensitivity to the structure of the inner sentence (which, *nota bene*, remains the same in both readings!). Referential ambiguity, being certainly the one of meaning, is not essentially the proper structural one.

That-clauses are regarded as names³⁶, i. e. *that* is a “name-forming operator”: in the simplest case, when the structure of the proposition is irrelevant (we shall present in the following examples when it is the case), *that* is of a category 1/0, that is *that*₀, operating on a sentence as a whole. Thus “*that*₀, John, sleeps>” is a name and its meaning is the intension of <John, sleeps>. When the intensions of the parts are relevant for the reading of the sentence, *that* is of the category 1/(0/1)1, that is it makes a name out of a predicate and a name. Since no symbol should be in more than one syntactic category, *that* is indexed and thus no syntactic ambiguity occurs. The above example with the *that* sensitive to the intensions of the parts would thus look as follows:

“<*that*_{((0/1)1), John, sleeps>”, where the meaning is composed of the intension of “sleep” and the intension of “John”.³⁷}

³⁶ because we have sentences such as: “Bill believed what Rob told him”; “Helen believes the winning answer”. “That” is said to turn a sentence into a noun phrase (i.e. an expression of the same syntactic category as “something”, “what Rob told him”, etc.) on the basis of the examples such as above. Cf. *ibidem*, p. 29.

³⁷ “The idea is that any *that* operates separately on expressions that by themselves can combine to form a sentence, making out of them a name of the sequence consisting of the meanings of the separate parts.” Cresswell (1985:102-103).

It is sometimes claimed that Cresswell’s view of structured propositions is wrong since to deduce that A and B is not to deduce that B and A and therefore the propositions “A and B” and “B and A” have to be different. Cresswell would be right, then, claiming that *that*-clauses name structured intensions, but on that view, “B and A” and “A and B” could not name the same thing since they are structured intensions. Richard (1990) claims that the *that*-clauses name sets of structured intensions: the relation holds to two things, “A” and “B”, rather than to one thing “A and B” (or “B and A”). The verb “believe” does not cause the same difficulties as “to deduce”, being indifferent to such interchanges. Some other verbs, however, do. And replacing a proposition by a set of structured intensions seems to be a way

Let us now take a sentence “Ortcutt is not a spy”, or: “not(is a spy, Orcutt)” and a sentence “Ralph believes that Orcutt is not a spy”. In the simplest case, “believes” is related to the intension of the complement sentence:

*that*₀ (not (be a spy Orcutt)),

with “0” being the semantic category of propositions. But as we have said, “that” may be sensitive to the parts of the proposition as well.³⁸ The intermediate case of our example will use *that* belonging to the category 0/0,0: “*That*_(0/0,0) (not (be a spy, Orcutt))”, and the case using *that* which is the most sensitive to the structure looks as follows: “*that*_{((0/0),(0/1),1)}(not be a spy Orcutt)” with *that* being a three place operator. And this way we can represent the differences between the *de re* and *de dicto* readings, namely taking more or less of the structure of the proposition into account.³⁹

This semantics looks much more adequate than the one using Frege’s version of the compositionality principle; it allows for the decision as to to what degree the structure of a proposition should be considered and thus is much more flexible. This is what we have demonstrated in the “Ortcutt” example; there can be three different underlying structures (“logical forms”) of this attitude sentence using three different *that*’s. Let us then analyse our “Ortcutt” examples using this λ -categorical language. The considered sentences are the following:

A. Ralph believes that Orcutt is a spy

B. Ralph believes that Orcutt is not a spy

and their Polish translations:

C. Ralf wierzy, że Orcutt jest szpiegiem

D. Ralf wierzy, że Orcutt nie jest szpiegiem

and also:

E. Ralph does not believe that Orcutt is a spy⁴⁰

as opposed to:

F. Ralf nie wierzy, że Orcutt jest szpiegiem

out. But it seems to be equally plausible to divide attitude verbs into “quotational” ones (“deduce”) and others in which introducing sets of intensions rather than a single proposition is unnecessary since the above example of the conjunction ($a \wedge b \Rightarrow b \wedge a$) is the only law that holds in such (non-equational) attitude constructions, and even if it holds only in some of them, splitting the proposition seems to be very counterintuitive: we can always say that in some cases the order of the constituents of the conjunction does matter and this will be the case of the *that* complement sensitive to the structure of the proposition (in Cresswell’s account). See *ibidem*.

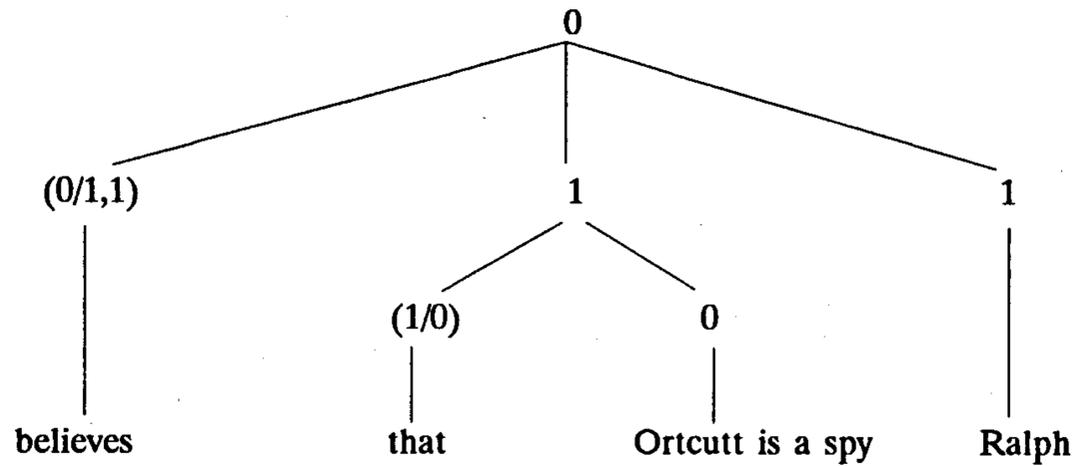
³⁸ cf. Cresswell (1985:88).

³⁹ The intension of “is a spy” is *is a spy*; of “not” is *not*. Therefore, for instance the intermediate “that” will be sensitive to such a structured intension: “< ω not, ω be a spy (o)>” whereas the most sensitive “that” will take the intensions: “< ω not, < ω be a spy, o>>” and the basic one will take the reference: “ ω not (ω be a spy (o))” into account. For the notation and the difficulties with iterated beliefs see Cresswell 1985. Generally, Cresswell enumerates three functions of *that*-structure: converting a sentence into a name; equating the reference of the clause with the sense of the sentence; and taking structure into account.

⁴⁰ usually used to mean the same as B.

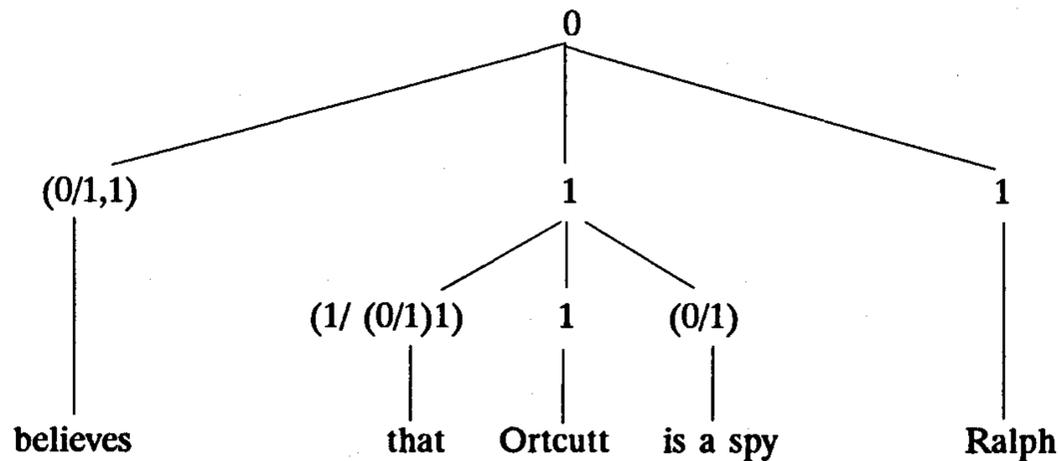
G. Ralf nie wierzy, $\left\{ \begin{array}{l} \text{żeby} \\ \text{aby} \\ \text{by} \\ \text{jakoby} \end{array} \right\}$ Ortcutt był szpiegiem.⁴¹

Ad. A: 1. *de dicto* case (the name used matters):
 <Ralph, believes, <that₀, <Ortcutt, is a spy>>>



2. *de re* reading (substitution is possible here; *that* operates on a name and on a predicate separately):

<Ralph, believes, that_{(0/1)1}, Ortcutt, is a spy>

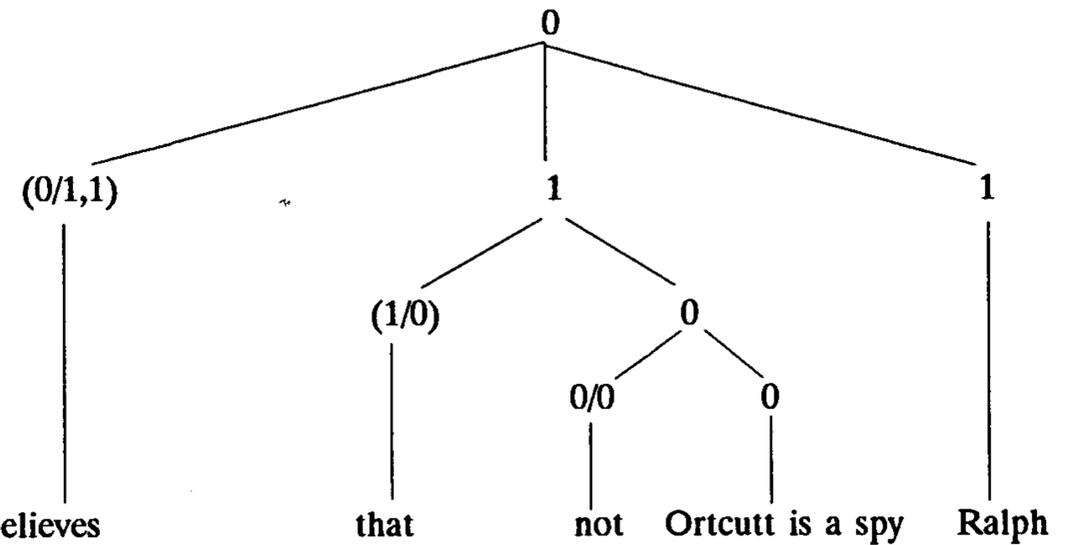


Ad. B: we draw it analogously, adding "not" in the structure:

1. *de dicto*:

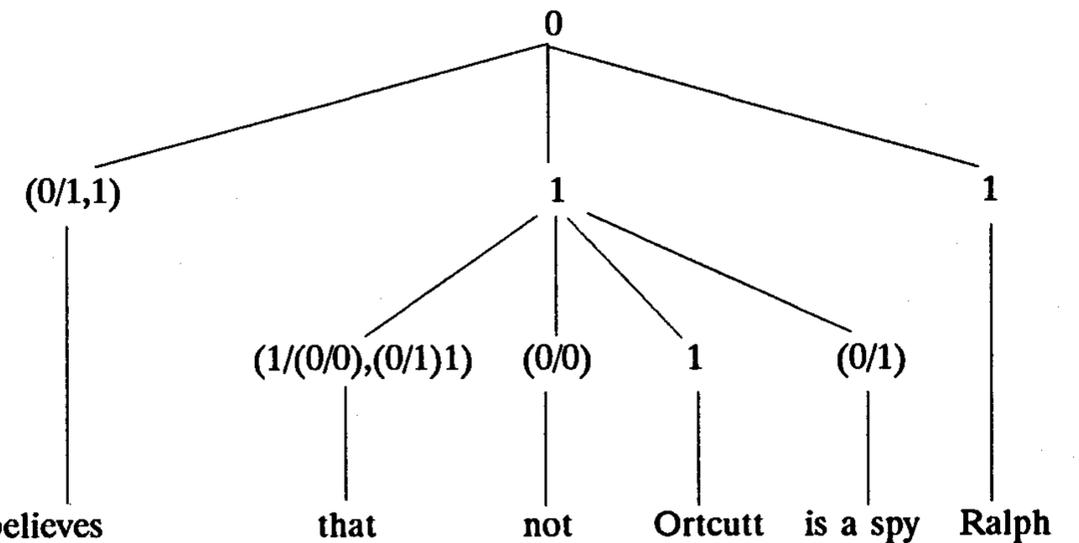
<Ralph, believes, <that₀, <not, <Ortcutt, is a spy>>>>

⁴¹ both F and G usually used to mean the same as D.



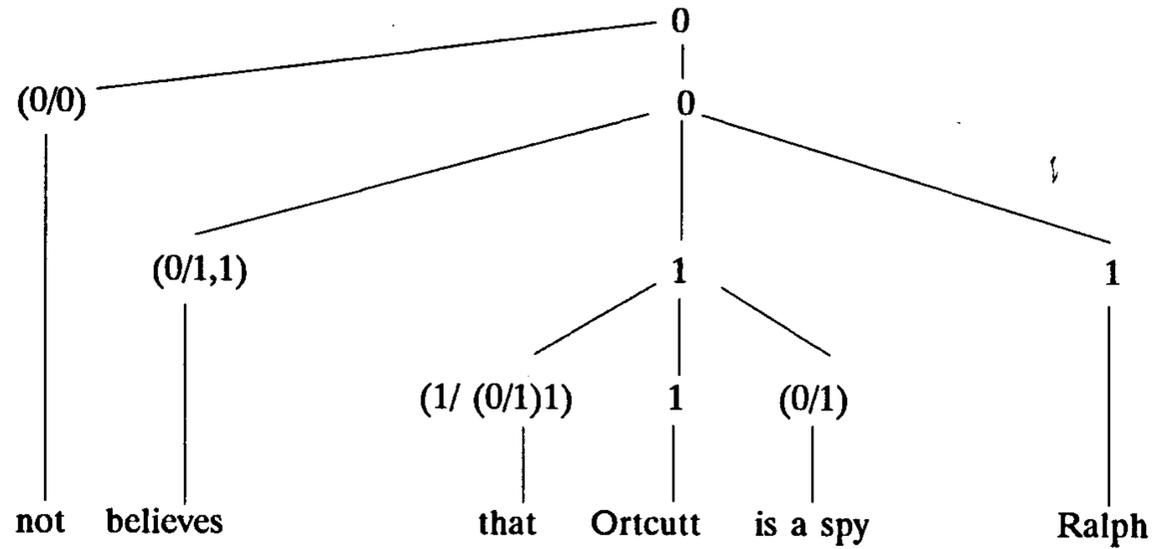
2. *de re*:

<Ralph, believes, <that_{(0/0),(0/1)1}, not, Ortcutt, is a spy>>



Other cases of different sensitivity are, of course, possible. Polish sentences C and D look analogously.

Ad. E: this sentence can also have the *de re* and the *de dicto* meaning. Let us first analyse the *de re* one. After analysing the Polish equivalents, we shall see whether they resemble this reading or rather the *de dicto* one of (E) and thus, for our purposes, only one possibility will do for the time being. The structure will presumably look as follows:



The same analysis concerns the *de re* reading of the Polish equivalent F.

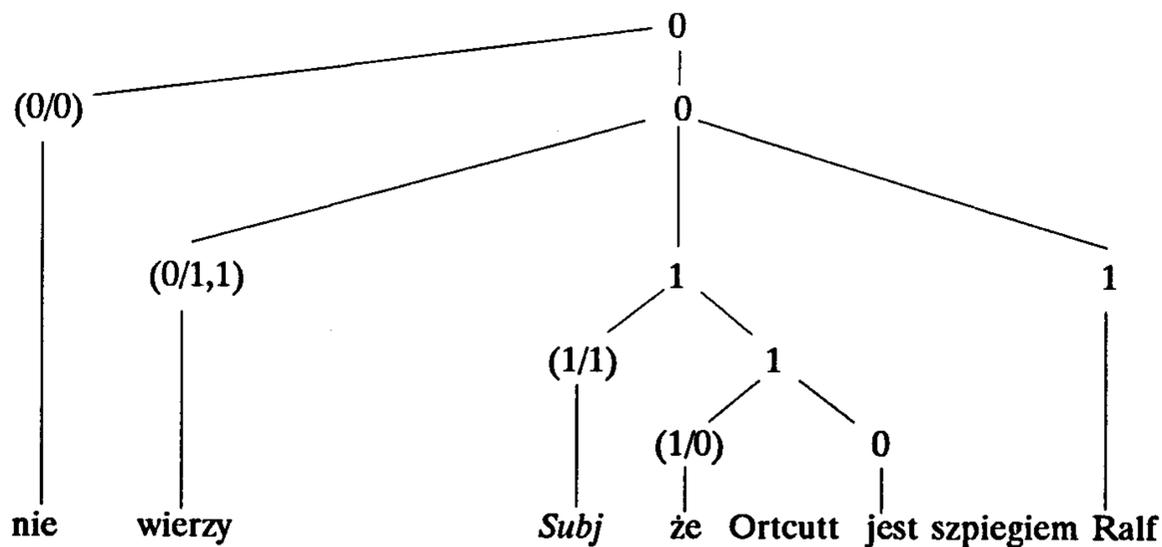
Let us try now to see what the analysis of G could look like. First of all, it is necessary to describe the status of the complementizer *żeby*. We can hypothesize that

“that Orcutt is a spy” + *Subj*
in Polish constructions looks as follows:

Subj, że Orcutt jest szpiegiem ,
where *Subj* is realized as “Past + *by*”. Then the analysis would look as follows:

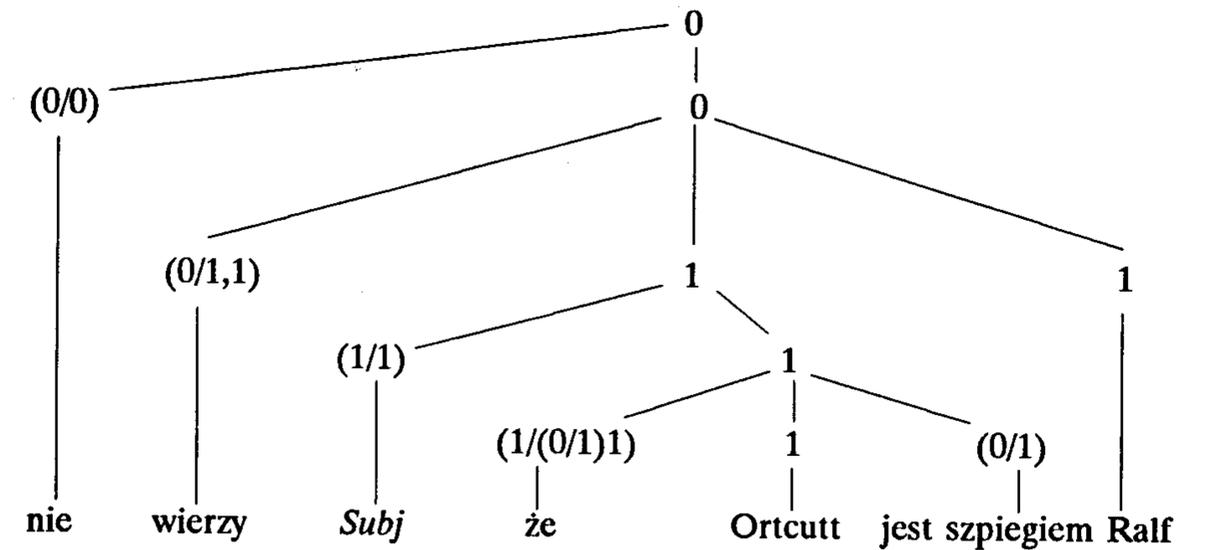
1. *de dicto*:

*<nie, <Ralf, wierzy, <Subj, <że₀ <Orcutt, jest szpiegiem>>>>>

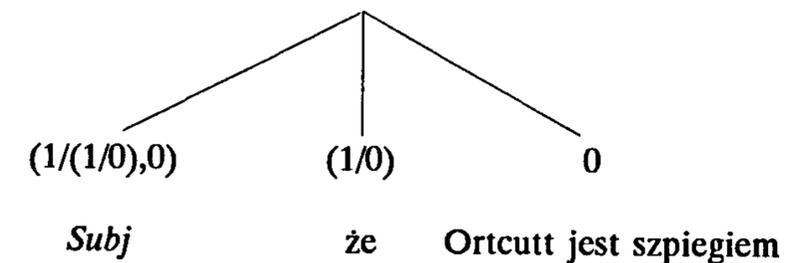


2. *de re*:

<nie, <Ralf, wierzy, <Subj, <że_{(0/1)1}, Orcutt, jest szpiegiem>>>>



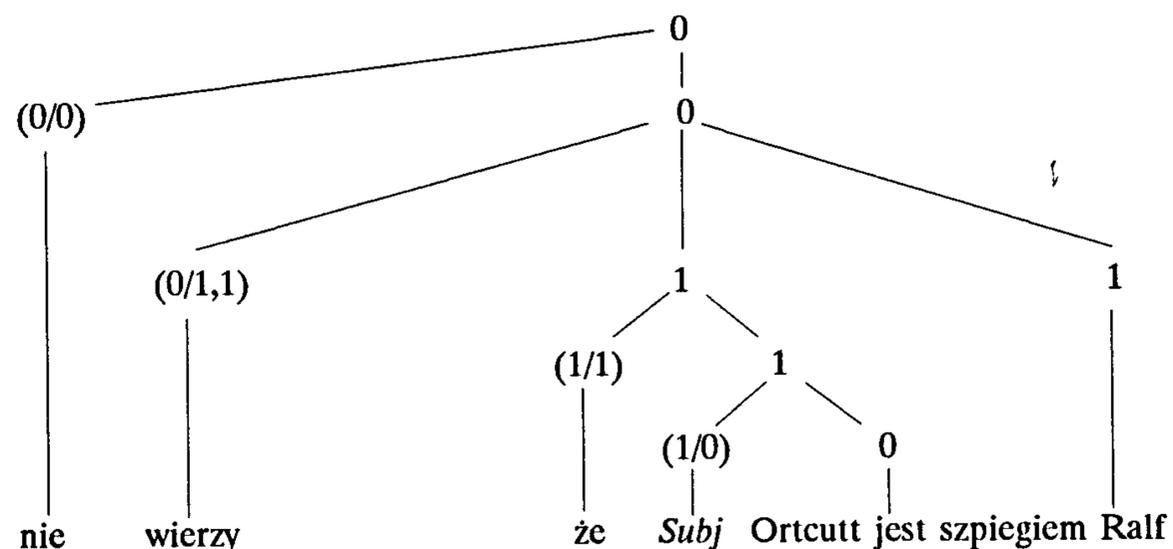
Neither of these readings can be accepted. The way *Subj* operates here would suggest the *de dicto* reading of this sentence since it affects both the complementizer *że* and the embedded sentence as such. But since the mood maker of *żeby* (i. e. *by*) and past form of the verb “to be” (i. e. “*był*”) are both realizations of the same category (subjunctive), the structure such as



as the lower part of the previous tree looks very improbable. However, it does not seem to be possible to save the “regular” construction “that Orcutt is a spy” (“*że Orcutt jest szpiegiem*”) as an embedded entity in this way since it is *by* itself which is a mood maker and we cannot split the construction the way we did above. It is more likely that we can split it the other way round, i. e. leaving the subjunctive clause inside:

<nie, <Ralf, wierzy, <że₁, <Subj, <Orcutt, jest szpiegiem>>>>, with the word *żeby* and the subjunctive realization of “*jest*” as “*był*” in the surface form. We presume that the category of *that* (*że*) will change here as compared with the English examples since “*by Orcutt był szpiegiem*” seems to be of the category 1, and thus *że* is of the category 1/1.⁴² Then the sentence G may have the following structure:

⁴² We regard the construction “*żeby Orcutt był szpiegiem*” as being of the category (1) on the



This analysis shows that the *żeby*-clause has a very strong integrity and that it is very likely to represent the “marked” *de dicto* case, no matter how much of the structure of the final “0” we take into consideration since the “proposition” as such is here embedded both in the 1/0 and then in 1. Due to this strong integrity, this construction is very likely to constitute also the *de dicto* translation of the English sentence E. Thus the *że* translation, i. e. the sentence F, seems to remain neutral, unmarked, tending to be rather the *de re* one due to the distribution of “synonyms” discussed in the previous chapter, and confirmed by the semantic and the syntactic evidence from our analysis within the λ -categorial language. We can also presume that in English the *that*-clause is more likely to represent the *de re* case as well since all its semantic and syntactic properties are identical to those of the Polish sentences, i. e. there is no level of analysis where the contrast would appear. Moreover, the same observation could be drawn from the data considered in the previous analysis and, presumably, we would obtain the same conclusion on the empirical basis; this is what really *seems to happen* in everyday reporting on somebody’s belief. And this contrastive analysis provides another argument to strengthen the above claim.

basis of the comparison with the constructions such as: Chcę ciastko (I want a cake) Chcę, *żeby* Ortcutt był szpiegiem (I want Ortcutt to be a spy).

Alternatively, we could treat *Subj* as of category 0/0 and consequently *że* as of category 1/0 or 1/(0/0) (0/1)1. However, since not only “*żeby* Ortcutt był szpiegiem” alone as well (i.e. they both can be plausibly regarded as being of category 1), the best solution seems to be to regard *że* as being of category 1/1 in the sentences involving subjunctive, although it contradicts the original Cresswell’s claim that *that* always takes something of a category which is generally 0. Our strong claim does not, however, seem to show that the subjunctive does not fit the framework; it extends the number of combinations *that* may involve thus providing, in our case of attitudes, a clue for the correct reading within the *de re/de dicto* ambiguity.

Conclusions

The difficulty with belief ascription has been shown to lie in the referential ambiguity of the statements of belief. In order to specify the referent, i.e. the object of belief, it turns out to be necessary to examine both the language expressions, mental background knowledge of the participants, and their non-linguistic activities, as well as the mental processes accompanying forming a belief.

We can also conclude that one of the possible readings of belief sentences is an unmarked, basic one, assumed “by default” in a conversation. We observed that there is a slight *de re/de dicto* distinction in Polish in negative belief attitude sentences and it can be a source to differentiate between the homophonous English *de re* and *de dicto* constructions, possibly regarding the simple *that*-constructions as the *de re* reports, and seeing the other ones as requiring further specification. However, it is difficult to say what this specification would have to be like. It is very unlikely that it could be done by introducing modal verbs (“couldn’t”, “can’t”, “wouldn’t”, etc.) since the meaning of the sentence would then change as well.

Moreover, the Polish examples show that the attitude is not always held to the same proposition or, alternatively, there is a “believe that” construction which is not a propositional attitude at all. In the case of a report using *żeby*, the proposition is embedded in a multiple way. But even if we reject this analysis and accept rather the (*) one above, the claim about the strong integrity of the *żeby*-constructions is maintained and even strengthened since it shows how the *de dicto* reading is necessary for this sentence if we accept the position of *Subj* in the structure as assigned to it in (*).

After all, we may ask why the obtained data should be relevant for the analysis of English. One of the reasons comes from the syntactic representations of the above sentences: most of the translations having the same structure, there is a reason other than linguistic for the observed difference in the case of E as opposed to F and G. Moreover, analysing a universal phenomenon as realized in the analysed language and in a different one is a method normally used as supportive evidence in linguistic studies.

Since we claim that all contrasts and distributions in language have to be meaningful and have their purpose, we also claim that the above suggestions lead to the conclusion that the lexical difference in expressing negative attitude reports in Polish constitutes a strong argument for a systematic difference in belief sentences between the *de re* and *de dicto* readings. And, *a fortiori*, it is also an argument for their systematic ambiguity in English. Contrasts in form are said to bring about contrasts in meaning; if one form has a certain scope of reading, the other, “by Occam’s razor”, will have a different scope, the only difficulty being that not all languages exhibit such difference in form although the difference in meaning may occur, thus giving the reasons for the ambiguity.

It has to be remembered, however, that the primacy of the *de re* reading is not understood as a psychological or a logical one, i. e. as the possibility of describing the *de dicto* reading as “*de re* plus something”, but only as a primacy in our encoding of someone’s expression of belief. Moreover, only having shown the primacy

of the *de re* reading over the *de dicto* one can we justify the factive/non-factive distinction among attitude verbs; and since the distinction proves useful and correct, so does the view on the primacy.

REFERENCES

- Bak, P. 1977. *Gramatyka języka polskiego. Zarys popularny*. Warszawa: Wiedza Powszechna.
- Barwise, J. and Barwise, P. 1983. *Situations and Attitudes*. Cambridge, Mass.; London, England: The M.I.T. Press.
- Bolinger, D. 1972. *That's That*. The Hague; Paris: Mouton.
- Carnap, R. 1956. *Meaning and Necessity. A Study in Semantics and Modal Logic*. Second edition. Chicago and London: The University of Chicago Press.
- Cresswell, M. 1985. *Structured Meanings: The Semantics of Propositional Attitudes*. Cambridge, Mass.; London, England: The M.I.T. Press.
- Cresswell, M. and von Stechow, A. 1982. "De re Belief Generalized". *Linguistics and Philosophy* 5.4. 503-535.
- Doroszewski and Wieczorkiewicz, B. (eds). 1959. *Gramatyka opisowa języka polskiego z ćwiczeniami*. Vol.2. *Składnia*. Warszawa: Państwowe Zakłady Wydawnictw Szkolnych.
- Fisiak, J., Lipińska-Grzegorek, M. and Zabrocki, T. 1978. *An Introductory Polish-English Contrastive Grammar*. Warszawa: Państwowe Wydawnictwo Naukowe.
- Fodor, J. A. 1975. *The Language of Thought*. New York: Thomas Y. Crowell.
- Gibbon, D. 1982. "Violations of Frege's Principle and Their Significance for Contrastive Semantics". *Papers and Studies in Contrastive Linguistics*. Vol.14. Poznań: Adam Mickiewicz University. 15-24.
- Hintikka, J. 1962. *Knowledge and Belief. An Introduction to the Logic of the Two Notions*. Ithaca, New York: Cornell University Press.
- Jaszczolt, K. (in progress). "Belief Sentences and the Semantics of Propositional Attitudes". D. Phil. thesis. University of Oxford.
- Johnson-Laird, P. 1983. *Mental Models. Towards a Cognitive Science of Language, Inference, and Consciousness*. Cambridge, Mass.: Harvard University Press.
- Kalisz, R. 1981. *The Pragmatics, Semantics and Syntax of the English Sentences with Indicative That Complements and Polish Sentences with Ze Complements. A Contrastive Study*. Gdańsk: Uniwersytet Gdański.
- Kalisz, R. 1989. "On Representatives as a Class of Illocutionary Acts". In Oleksy, W. (ed.). 1989. 37-54.
- Krzyszowski, T. 1989. "Towards a Typology of Contrastive Studies". In Oleksy, W. (ed.). 1989. 55-72.
- Lakoff, G. 1987. *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago, London: University of Chicago Press.
- Oleksy, W. (ed.). 1989. *Contrastive Pragmatics*. Amsterdam, Philadelphia: John Benjamins. 37-54.
- Langacker, Ronald W. 1983. *Foundations of Cognitive Grammar*. Bloomington, Indiana: I.U.L.C.
- Lewis, D. 1970. "General Semantics". *Synthese* 22. Reprinted in: Partee, B. (ed.). 1976. 1-50.
- Marras, Ausonio (eds). 1972. *Intentionality, Mind and Language*. Urbana, Chicago, London: University of Illinois Press.
- Montague, R. 1970. "Pragmatics and Intensional Logic." *Synthese* 22. 68-94.
- Partee, B. (ed.). 1976. *Montague Grammar*. New York: Academic Press.
- Quine, W. 1956. "Quantifiers and Propositional Attitudes". *Journal of Philosophy* 53. Reprinted in: Marras, Ausonio (ed.). 1972. 402-424.
- Quine, W. 1960. *Word and Object*. Cambridge, Mass.: The M.I.T. Press.
- Richard, M. 1990. *Propositional Attitudes. An Essay on Thoughts and How We Ascribe Them*. Cambridge: C.U.P.
- Rundle, B. 1979. *Grammar in Philosophy*. Oxford: Clarendon Press.
- Stalnaker, R. 1984. *Inquiry*. Cambridge, Mass.: The M.I.T. Press.