

THE RELATION BETWEEN PREDICATES AND THEIR SENTENTIAL
COMPLEMENTS.
A PRAGMATIC APPROACH TO ENGLISH AND POLISH

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1. INTRODUCTION.

In numerous linguistic writings of the past decade the complement-taking predicates were subdivided into factives vs. non-factives (later also a semi-factive group was recognized).¹ In the light of these observations factives apparently stand out among other predicates to the effect that they presuppose the truth of their complements. Originally factivity, as a semantic feature of factives only, was invariably bound to the notion of presupposition. This general observation was, however, subject to numerous interpretations; be it the lexical vs. pragmatic approach (cf. Fillmore 1971 a,b as opposed to the Kiparskys 1971; G. Lakoff 1971 a,b,c; R. Lakoff 1971; Karttunen 1970, 1971 a, b) or the logical vs. pragmatic view (the former being partly introduced by Karttunen in his earlier writings).²

The indiscriminate use of presupposition in linguistics made it such a vague catchall term that some attempts were undertaken to clarify the concept, cf. Karttunen (1970, 1971b); Keenan (1971); Kempson (1975); Stalnaker (1974); Wilson (1975), and others. In the course of investigation, presupposition, whether as a purely logical relation, or in its weaker pragmatic form, often seemed too strong to account for the semantic idiosyncracies of lin-

¹ Cf. Karttunen 1971b.

² See his first endeavors to formulate meaning postulates for factives, semi-factives and other verbs standing in a relation to their complements (Karttunen 1970, 1971a, b). This formal approach was soon weakened by introducing pragmatic concepts, i.e. the speaker's attitude to complement proposition (1971b:23-4). Cf. also Morgan (1969:167), Leech (1974:306-7), Jackendoff (1972:276) where the two types of presupposition were distinguished.

guistic categories, factive predicates included. Hence, the earlier claims of presuppositionalists were abandoned in favour of the entailment approach advocated, for example, by Kempson (1975) and Wilson (1975).

My contention is that neither presupposition nor entailment can account for the idiosyncracies of factives since certain semantic readings of sentences with these predicates are beyond the explanatory power of the inferences constituting the presupposition or entailment truth tables. Consequently, it will be shown below that:

- a. presupposition and entailment are "too strong" logical relations to account for certain facts characteristic both of English and Polish data; hence, predicates should be analysed within a pragmatic framework;
- b. the pragmatic approach being adopted, not only alleged factives but also other predicate groups exhibit certain relation with their sentential complements (henceforth implication);
- c. the factive/non-factive division of predicates should be dispensed with in both languages in favour of a predicate scale reflecting the diminishing strength of the implication relation between given predicates and their complements.

2. PRESUPPOSITION VS. ENTAILMENT

2.1 *The presuppositional approach to factives*

Let us consider a sentence with a factive verb *regret*:

1. I regret that bananas are hard to get
- 1'. Żałuję, że banany są trudne do zdobycia

According to presuppositionalists 1-1' presuppose the truth of their complements 2-2':

2. Bananas are hard to get
- 2'' Banany są trudne do zdobycia

So far it accords with native speakers' intuition that both in English and in Polish it would be inappropriate to utter 1-1' without commitment to the truth of 2-2'. However, if the inference is to be an instance of presupposition it must satisfy also the remaining conditions specified in truth-table I:³

S_1	\rightarrow	S_2
T	\rightarrow	T
$\sim(T \vee F)$	\leftarrow	F
F	\rightarrow	T

Table I

Since the second truth-condition is a traditional point of controversy, I will now focus on the last condition given in *Table I*. It turns out that if

³ This formulation was taken from Kempson (1975:49), but see also Strawson (1950, 1952) and van Fraassen (1969).

1 (i.e. S_1) is negated internally, (by means of choice negation)⁴ thus having the form of 3:

3. I do not regret that bananas are hard to get
- 3'. Nie żałuję, że banany są trudne do zdobycia

2 is a quite natural inference drawn from it. However, a question arises of whether 2 is the only possible inference from 3. It follows from 4 that in an appropriate context it is possible to utter 3 without believing that 2 is true:

4. I do not regret that bananas are hard to get since
 - a. I realize you are telling me stories
 - b. they are after all easy to get
 - c. it is only a rumour, etc.
- 4'. Nie żałuję, że banany są trudne do zdobycia, jako że
 - a. zdaję sobie sprawę z tego, że opowiadasz mi historyjki
 - b. właściwie są łatwe do zdobycia
 - c. to tylko plotka, itd.

Thus, the argument that factives presuppose the truth of their complements is undermined by the above analysis once the allegedly presupposed sentence is realized to be in fact a contingent proposition, i.e. being sometimes true and sometimes false. In the latter case it gets suspended which was claimed to be characteristic of semi-factives but never of full factives, *regret* being one of them⁵.

It was the Kiparskys (1971:351-2) who viewed presupposition as intact under negation unless it is explicitly contradicted as in:

5. Mary did not clean the house; it was not dirty

Thus they excluded 5 as a possible interpretation of *Mary did not clean the house*. However, our observation concerning 4-4' is confirmed by Kempson (1975) who admitted that such interpretations of negations are by no means exceptional. She supports her claim with some example of negative sentences employing factives where the complements do get affected by negation, as opposed to affirmative sentences which are never subject to this process, cf. 6a and 6b, respectively:

- 6a.? Edward regretted that Margaret had failed even though he knew she hadn't
- 6b. Edward didn't regret that Margaret had failed because he knew it wasn't true

⁴ For the explanation of choice negation vs. exclusion negation, cf. Oh (1974), as a reaction to Karttunen (1971b); Kempson (1975:95-7) Wilson, (1975:32-5). Compare also Boguslawski's approach (1976).

⁵ The problem of presupposition suspension was dealt in detail in my extended version of this work (Kryk 1979:1.4).

Though she admits that sentences like 6b. are undeniably not the natural interpretation of the negative sentences in question, they are still equally not contradictory (1975:68–9).

A critical account of the presuppositional approach to negations was also given by Wilson (1975). Though she agreed that negative sentences with factives uttered in isolation or without qualification in general suggest the truth of their complements, they cannot be treated either as instances of logical presupposition or entailment. Rather, the negative sentence is compatible with the overt denial of its complement, hence the suggestion carried is cancellable. On the basis of some examples Wilson (1975:26) reached a conclusion constituting further support for the suggestion that only positive but not negative sentences do not allow presupposition suspension.

The above considerations have already cast doubt upon the relevance of the concept of presupposition for the analysis of the alleged factives, at least when they are negated. What should be examined at this point is the second inference of Table I given above. The formulation adopted here follows the Strawsonian account of presupposition (Strawson 1950, 1952). His contention was that, contrary to classical analysis, whenever S presupposes P and P is false, then S is assigned the third value „neither-true-nor-false”.⁶

Coming back to sentence 1:

1. I regret that bananas are hard to get
1'. Żałuję, że banany są trudne do zdobycia

a question arises of whether the second inference of Table I holds when S₂, i.e. 2 above, is false. I strongly believe that it would be counterintuitive to comment on 1 “No, you are wrong”, only on the basis of our knowledge that 2 is false, cf. Oh (1974:518). Thus, one can hardly conclude that 1-1' are false in this case. Neither are they true and it is worth investigating now whether the indeterminate truth value of propositions whose complements have explicitly been denied is characteristic of factives only.

The examples below illustrate the divergence in the behaviour of predicates whose semantic labels determine the possibility of negating their complements externally. One of the traditionally disputable cases among the alleged factives is *know* whose “semantically factive” properties can be questioned on the basis of sentences like 7. *Know* is often used to express judgements which, despite the speaker's belief, are wrong due to lack of sufficient evidence or knowledge on his part. Though this seems to violate Gricean Maxims (at least that of Quality – cf. Grice 1975; 1978), one can hardly question the acceptability of the following dialogue between a patient and his doctor:

7. A: I know that I had a heart stroke last night
B: (having examined him)
You are wrong. It was only a minor heart trouble.

Another “not-so-factive” verb *see* poses fewer problems than other verbs in its class. Though in its affirmative form *see* is supposed to carry the implication that its complement is true (cf. Karttunen 1970, 1971a), one can easily deny it as the examples below show:

8. I see that you are moving out
a. or maybe I am wrong?
b. if you are not just redecorating your rooms
8'. Widzę, że się wyprowadzasz
a. a może się mylę?
b. jeżeli nie odnawiasz tylko swoich pokoiów

8-8' are acceptable both in English and in Polish since *see* (and its Polish equivalent *widzieć*) when followed by *that*+S (*że*+S) configurations denote the speaker's conclusion about some external facts based on some observations. The truth of the complement cannot be suspended only when it refers to subjective emotional or psychological states (for a more detailed discussion of this issue, cf. Kryk 1979: Ch. 3). But, again, as was the case with *know*, the truth of the complement may be suspended with *see* when the subjective observations require specialized knowledge, cf.:

9. I see that I am getting pneumonia, or maybe it is just the flu?
9'. Widzę, że zaczyna mi się zapalenie płuc, a może to tylko grypa?

As far as “non-factives” are concerned, they also require some commitment on the part of the speaker to the truth of their complements. This is particularly noticeable with what Urmson (1970) calls parenthetical verbs. He observed that when a speaker uses a parenthetical verb in a statement about himself with an indicative sentence *p*, there is not merely an implied claim that the whole statement is true but also that *p* is true, however weak this claim might be.⁷ However, we cannot utter sentences like 10-10' without any commitment to the truth of their complements either:

10. I $\left. \begin{array}{l} \text{gather} \\ \text{believe} \\ \text{guess} \\ \dots\dots \end{array} \right\}$ that their relationship is falling apart
10'. $\left. \begin{array}{l} \text{Rozumiem} \\ \text{Wierzę} \\ \text{?Zgaduję} \end{array} \right\}$, że ich związek się rozpada

⁶ For a more detailed discussion of the theory, cf. Strawson (1950; 1952) and his articles (1954, 1971) refuting the counterarguments of his opponents.

⁷ Cf. Urmson (1970:224–5).

It must be noted that the speaker's commitment to the truth of the complement is much weaker with the verbs in 10-10' than it is with *know* (also one of parentheticals). The latter verb signals that all the information needed to qualify a given statement (i.e. the proposition *p*) is available to the speaker. Thus, Urmson (1970:227) suggested a scalar arrangement of parenthetical verbs showing the reliability of the conjoined statement according to the wealth of evidence, i.e. *know, believe, expect, guess, etc.*

The idea of scalarity of predicates was developed in Horn (1976) and elaborated on in Rosenberg (1975a). It follows from the above analysis that the semantic differences between the "semantically factive" *know* and the purported non-factive cannot be stated in terms of the factive/non-factive distinction. This becomes even more obvious if one compares 7 (denying the truth of the complement of *know*) with 11-11' where the same operation is performed on "non-factives":

- | | | |
|--------|--|---|
| 11. I | $\left. \begin{array}{l} \text{gather} \\ \text{believe} \\ \text{guess} \\ \dots\dots \end{array} \right\}$ | that cigarettes are harmful

a. if it is true what the doctors say
b. but it might be just an exaggeration |
| 11'. I | $\left. \begin{array}{l} \text{Rozumiem} \\ \text{Wierzę} \\ \text{?Zgaduję} \\ \dots\dots \end{array} \right\}$ | , że papierosy są szkodliwe

a. jeśli to prawda co mówią lekarze
b. ale to może być tylko przesada |

Needless to say, 11-11' are much more commonly used in a normal discourse than the corresponding sentences with *know* since knowing involves a stronger relation to the object of our knowledge than does a belief, a guess, etc. Consequently, the denial of the complement proposition requires in the case of *know* more elaborate contexts than those appropriate for an analogous operation with predicates like *gather, believe, assume or guess*. In the latter instance, the speaker himself may leave open the question of the truth of his judgement even by means of such "strong suspension" qualifying phrases as:

12. ... but it is only my belief (assumption, guess)

To recapitulate, the predicates discussed do stand in some relation to their complements but they differ as to the strength of this relation. This, in turn, has a significant impact upon the possibility of denying the truth of whatever was presupposed (implied, suggested)⁸ by the complement. Thus, the varying

⁸ The term "presupposition" is used very loosely here, comprising all the characteristics ascribed to it by linguists.

degree to which sentences with these predicates would be labelled "neither-true-nor-false" under a presuppositional analysis of their negated complements rules out the possibility of using this truth value in their semantic description. Consequently, the logical notion of presupposition fails to fulfil the necessary requirements for an explanatory concept capable of accounting for the semantic idiosyncracies of predicates. Finally, presupposition plays a crucial role in the factive/non-factive distinction, and if the predicates in question were to be classified according to the factivity criteria, they would be labelled neither factive nor non-factive. Their behaviour determined by pragmatic factors cannot be boiled down to this simple dichotomy and thus be assigned an unambiguous label within the presuppositional framework. It calls for a more diversified account and it is only a scalar arrangement of predicates that can handle the data at hand.

One task remains to be carried out at this point, i.e. checking the entailment truth table as to its possible application to the description of predicates. The reasons for this move are the following:

a. since presupposition has often been claimed to be an unnecessary complication in truth-conditional semantics, which can well handle the relevant facts by means of entailment,⁹ it is worth checking to see if the latter will prove useful in the analysis of factives, the presuppositional approach being dispensed with above. The controversy between the classical (two-valued) and three-valued logical systems can be traced back to the dispute of Sellars (1954) and Strawson (1954) over Strawson's ideas of presupposition introduced earlier (1950, 1952). Cf. also Nehrlich's attacks against presupposition (1965, 1967) as well as Roberts (1969) and Keenan (1971) who viewed presupposition as a type of entailment. Be that as it may, no justification of either of the two conflicting theories will be attempted below. For the present purposes the evaluation of the two logical relations will be confined to a brief presentation of their corresponding truth tables as to their possible application to the analysis of predicates called factive.

b. The comparison of the two competing solutions will eventually let us decide which of these, if any at all, may be said to be related to factivity, a category allegedly present in the semantic representation of factives and, as has been claimed, inducing not only their semantic but also their syntactic peculiarities.

2.2 The entailment relation

Let us have a look at the entailment truth table as compared to the presuppositional truth table, repeated here for convenience:

⁹Cf. Kempson's (1975) and Wilson's (1975) claims that what were called logical presuppositions in other accounts are better handled as entailments.

<i>Presupposition</i>	S_1 S_2	<i>Entailment</i>	S_1 S_2
	$T \rightarrow T$		$T \rightarrow T$
	$\sim(T \vee F) \leftarrow F$		$F \leftarrow F$
	$F \rightarrow T$		$F \rightarrow T \vee F$
	<i>Table I.</i>		<i>Table II</i>

The first inference does not differ from the corresponding one in the presupposition truth table. Thus, my example 1-1' entails, accordingly, its complement 2-2':

1. I regret that bananas are hard to get
- 1'. Żałuję, że banany są trudne do zdobycia
2. Bananas are hard to get
- 2'. Banany są trudne do zdobycia

The last condition of *Table II* shows how the entailment analysis succeeds in capturing the important generalization concerning the possible readings of negated S_1 . As opposed to presupposition, which predicts solely that the falsity of S_1 does not affect the truth of S_2 , the entailment approach does account for the option of assigning either of the two values $T \vee F$ to the entailed proposition. As was noted above, one can infer from the negation of 1 either that bananas are hard to get or that my lack of regret results from the fact that it is out of place to regret something which is not the case, cf. the contexts construed to obtain the reading of 3 (the negation of 2) given in 4 above.

However, at this point the entailment truth table stops coinciding with intuitive judgements and the divergence between logical formulae and a living language emerges again. Thus, there is no entailment relation between the sentences in 13:

13. Bananas are not hard to get (does not semantically entail)
I do not regret that bananas are hard to get

Also, consider the following:

14. Mary resents it that John has left her
but I know that he was only pretending
- 14'. Maria czuje urazę o to, że Janek ją opuścił
ale ja wiem, że on tylko udawał

In this case Mary may resent a non-existent event due to a lack of sufficient information or unjustified suspicions. Thus, although S_2 is false, S_1 need not be and here obviously is not. The immediate objection to this example will be that it employs a third person subject, so that the truth of S_2 is easy to suspend. Let me compare it then to the analogous sentences with first and second person singular subjects:

15. You resent it that John has left you
but I know that he was only pretending
- 15'. Czujesz urazę o to, że Janek cię opuścił
ale ja wiem, że on tylko udawał
16. *I resent it that John has left me
but I know that he was only pretending
- 16'. *Czuję, urazę o to, że Janek mnie opuścił
ale wiem, że on tylko udawał

15-15' are good sentences both in English and in Polish, but 16-16' are very unlikely to ever be uttered, unless one is joking or suffering from a split personality. Otherwise, a contradiction results since one cannot resent a fact while being aware of its falsity. This would be both counterintuitive and against a Principle of Emotional Reaction set up by Rosenberg (1975a:185):

"People react emotionally to states and events that exist (rather than to non-existent or hypothetical ones)".

This applies particularly to sentences with first person singular subjects where the subject equals the speaker, thus the truth of the complement cannot be suspended. However, other subjects allow such an external denial of their complements as it does not yield any contradiction; others may simply have the information that the subject lacks at the moment.¹⁰

It has turned out that the entailment analysis does not satisfy the requirements for a theory capable of explaining the impact of pragmatic factors upon the truth value of relevant propositions. However, one more point of controversy between the two competing approaches calls for attention at the moment. The main argument against presuppositionalists has been focused on the introduction of the third logical value "neither-true-nor-false". Its opponents claimed that two-valued logic is a sufficient apparatus for handling the cases of presupposition failure (presupposition suspension, truth-value gaps, infelicitous utterances, etc.).¹¹ Thus, for them if a referring expression lacks a referent or a complement entailed by its superordinate sentence is false, the whole statement is simply false and not lacking a truth value.

Strawson, one of the chief presuppositionalists¹², searched for a reconciliation of the two theories. He argued that despite some differences, the presuppositional and the entailment approaches are in a way compatible with

¹⁰ For the discussion of how the selection of subject person influences the suspension of the complement's truth, cf. Rosenberg 1975a. and the analysis below.

¹¹ These terms are due to Strawson (1950, 1952), Quine (1960) and Austin (1962), respectively.

¹² The other advocates of three-valued logic were Austin and Quine. On their accounts of presupposition suspension, cf. Austin (1962), Quine (1960) and Strawson's comments on them (1971:90-1).

each other. The discrepancy between the lack of truth value as opposed to the falsity of a negated presupposition boils down to "different ways of being impressed by the facts" (1971:91). Thus, he suggested a contextually conditioned approach to reference failure to the effect that it is the position of the referring expression in the sentence that determines its falsity or the lack of truth value (1971:95-8).

This position was criticised by Wilson (1975:19) who claimed that Strawson had advocated a free selection of either of the approaches according to one's fancy. As a result neither view comes out of the disagreement satisfactorily. However, she admitted that Strawson's notion of entailment, being misconstrued, does not coincide with her formulation, therefore her counterarguments are out of place. Moreover, she misinterpreted Strawson's intentions, as he was by no means eclectic but only refined his theory with respect to context. Finally, he was attacked by Wilson for conflating two rival theories, but it is exactly what she proposed as the only way out for the presuppositional approach, cf. her theory allowing for the ambiguity of negative sentences which are ambiguous between a presupposition-carrying and a non-presupposition-carrying readings (1975:32-5). There is one obvious common denominator for all these moves, only Wilson does not seem to realize it, i.e. pragmatic factors. And that is what my above analysis has clearly shown.

The presupposition and entailment approaches having been rejected above, a short account of a pragmatic analysis of predicates will follow. It is by no means exhaustive, indicating only how the problem in question can be handled within a non-truth-conditional framework.¹³

3. THE ANALYSIS.

The limited scope of this paper is reflected in the present sketchy treatment of predicates in affirmative sentences only, other contexts being elaborated on in Kryk (1979). First, let me assume, for the above mentioned reasons, that factives do not presuppose or entail but weakly imply the truth of their complements. Consider the following examples:

17. I resent it that koala bears live only in Australia
 a. *though I know they also appear in Southern Poland
 b. Wait a minute: Haven't you read about the latest findings in Africa?
 17'. Czuję żal o to, że misie koala żyją tylko w Australii
 a. *chociaż wiem, że pojawiają się także w południowej Polsce
 b. Chwileczkę: czy nie czytałeś o ostatnich odkryciach w Afryce?
 18. Koala bears live only in Australia
 18'. Misie koala żyją tylko w Australii

¹³ A more exhaustive account of implication suspension in questions, negations and complex sentences was given in Kryk (1979).

One can infer from 17-17' that 18-18' are true and for this reason 17a will be judged as an impossible continuation, as it results in a contradiction both in English and in Polish (cf. 17a'). Though the truth of the complement cannot be denied by the speaker himself, it allows for an external denial by a person non-coreferential with the subject (cf. 17b-17b'), since someone else may have better knowledge or information concerning the relevant fact than does the speaker.

Analogously, second and third person subjects of factives allow an overt denial of their complements provided that the operation is performed by a person non-coreferential with the subject, for example:

19. Mary is surprised that the penguin is flying
 a. *though she_i knows it is a raven
 b. but she_i hasn't noticed it is a raven
 19'. Maria_i jest zaskoczona, że leci pingwin
 a. *chociaż nie wie (ona_i), że to jest kruk
 b. ale nie zauważyła (ona_i), że to jest kruk

However, the non-coreferentiality of the subject with the performer of the denial is not the only condition of implication suspension with factive complements. As 20-21 and 20'-21' show, if the complement refers to subjective beliefs, thoughts and states experienced by the subject, its truth is immune to suspension. But in the case of outside world events and general statements the possibility of external denial radically increases. Note that the "objectivity factor" is independent of the person the subject is in:

20. $\begin{bmatrix} \text{I} \\ \text{you} \\ \text{he} \end{bmatrix}$ ignore(s) the fact that $\begin{bmatrix} \text{I} & \{ \text{have} \} \\ \text{you} & \{ \text{have} \} \\ \text{he} & \text{has} \end{bmatrix}$ a headache
 *but I tell you, it is not a headache — it is an illusion
 20'. $\begin{bmatrix} \text{Ja} \\ \text{Ty} \\ \text{On} \end{bmatrix}$ ignoruj $\begin{bmatrix} \text{ę} \\ \text{e} \\ \text{e} \end{bmatrix}$ sz fakt, że $\begin{bmatrix} \text{mam} \\ \text{masz} \\ \text{ma} \end{bmatrix}$ ból głowy
 *ale mówię ci przecież; to nie ból głowy, to tylko złudzenie
 21. It shocks $\begin{bmatrix} \text{me} \\ \text{you} \\ \text{him} \end{bmatrix}$ that the Shah has gone to the USA ... but
 don't you know that the is still in Maroco?
 21'. Szokuje $\begin{bmatrix} \text{mnie} \\ \text{ciebie} \\ \text{jego} \end{bmatrix}$ fakt, że Szach wyjechał do USA ... ale
 czy nie wiesz, że on jest jeszcze w Maroko?

In the light of the above observations, the definition of a factive verb may be modified as follows:

Def. 1.: In a simplex affirmative sentence with a factive verb its complement is true unless it refers to objective reality and/or is denied externally by a subject non-coreferential with the factive subject.¹⁴

My final formula, which will henceforth be referred to as The Principle of Non-Coreferentiality, pertains to "true factives" only. It is thus worth seeing whether it can also cover "not-so-factives", like *know*, *see* and their Polish equivalents. Intuitively, it should work fine with these verbs and the following data confirm this prediction:

22. I $\left\{ \begin{array}{l} \text{know} \\ \text{see} \end{array} \right\}$ that I am getting the flu
 a. *but I realize that I am wrong
 b. *but I tell you, it is not the flu — it is an illusion
- 22'. $\left\{ \begin{array}{l} \text{Wiem} \\ \text{Widzę} \end{array} \right\}$, że łapię grype
 a. *ale zdaję sobie sprawę, że się mylę
 b. *ale mówię ci przecież, to nie grypa — to tylko złudzenie
23. I $\left\{ \begin{array}{l} \text{know} \\ \text{see} \end{array} \right\}$ that our climate is changing these days
 a. *but I realize that I am wrong
 b. Not really. Haven't you read the latest reports of the Meteorological Research Center?
- 23'. $\left\{ \begin{array}{l} \text{Wiem} \\ \text{Widzę} \end{array} \right\}$, że nasz klimat obecnie się zmienia
 a. *ale zdaję sobie sprawę z tego, że się mylę
 b. Niezupełnie. Nie czytałaś ostatnich raportów Centrum Badań Meteorologicznych?

According to previous predictions, the possibility of denying the truth of the complements of "not-so-factives" and their Polish equivalents coincides with the restrictions set up for "full factives". Thus, the operation can be performed only when the complement refers to objective reality and is questioned by a person non-coreferential with the subject (cf. 23b-23'b). Otherwise, when the complement describes subjective experiences (22ab-22'ab) or objective facts denied by the subject himself (23a-23'a) — unacceptable sentences result. To recapitulate, both in English and in Polish The Principle of Non-Coreferentiality seems to be of a much wider range than might have been expected so far.

It has been shown so far that the factive/not-so-factive distinction is ill-founded, if implication suspension is taken to be the criterion. A question

¹⁴ No past contexts are considered here as they shed very little light on the formulation of my hypothesis. Cf., however, Rosenberg (1975a, b) and Kryk (1979).

arises here as to the behaviour of the alleged non-factives in affirmative contexts. If it turns out that their semantic properties can also be captured by my Def. 1., the factive/non-factive dichotomy with its "not-so-factive" class will have to be rejected as lacking any explanatory power.

The group of non-factives to be analysed here are parenthetical verbs bearing some relation (i.e. implication, cf. above) to their complements, though none of them has ever been labelled factive. The following examples test four parentheticals arranged according to the scale proposed by Urmson (1970) as reflecting the speaker's wealth of evidence:

24. I $\left\{ \begin{array}{l} \text{believe} \\ \text{agree} \\ \text{suspect} \\ \text{guess} \end{array} \right\}$ that I am close to a nervous breakdown
 a. *but I know that I am wrong
 b. ? Oh, no! You are just exhausted
- 24'. $\left\{ \begin{array}{l} \text{Wierzę,} \\ \text{Zgadzam się,} \\ \text{Podejrzewam,} \\ \text{Sądzę,} \end{array} \right\}$ że jestem bliska zalamania nerwowego
 a. *ale wiem, że się mylę
 b. ?Och, nie! Po prostu jesteś wyczerpana.

The unacceptability of 24-24'a,b indicates that although the four verbs carry a weaker commitment on the part of the speaker to the complement's truth than do factives, they share with the latter some of the implication suspension properties. If the complement is questioned by the speaker a contradiction results, however, sentences with overt denials sound much better. It is possible that another person has a distinct opinion on the subject, even if it concerns subjective experiences. Thus, the commitment of the speaker to the truth of the complement of parentheticals is not as strong as in the case of "factives" and "not-so-factives".

Some more problems arise when the complements of the verbs discussed denote objective facts. It was noted above that, contrary to The Principle of Non-Coreferentiality, the speaker himself may question the truth of such a complement, cf. 11-11'a,b. However, a,b do not constitute an actual denial but only reflect a hesitation or uncertainty on the part of the speaker.¹⁵ The following continuation of 11 illustrates my point (c. is as unacceptable as was 24a-24'a):

¹⁵ Note that analogous phrases would sound acceptable even with *regret* which does not allow suspension of the complement's truth: I regret that cigarettes are harmful, if it is true what the doctors say

11. I $\left\{ \begin{array}{l} \text{gather} \\ \text{believe} \\ \text{guess} \end{array} \right\}$ that cigarettes are harmful
 c. *but I know that I am wrong
- 11'. $\left\{ \begin{array}{l} \text{Rozumiem,} \\ \text{Wierzę,} \\ \text{Sądzę,} \end{array} \right\}$ że papierosy są szkodliwe
 c. *ale wiem że się mylę

There is still one possible objection to the present analysis. Namely, the commitment of the speaker to the truth of the complement is weaker with parentheticals than with the verbs discussed so far. This can be seen on the basis of 11d (a continuation of 11):

11d. ... but it is only my understanding, belief, guess...
 Compare it with analogous sentences employing factives and "not-so-factives" which sound absurd in this context:

25. I $\left[\begin{array}{l} \text{regret} \\ \text{know} \\ \text{see} \end{array} \right]$ that cigarettes are harmful
 * but this is only my $\left[\begin{array}{l} \text{regret} \\ \text{knowledge} \\ \text{seeing it that way} \end{array} \right]$
- 25'. $\left[\begin{array}{l} \text{Załużę,} \\ \text{Wiem,} \\ \text{Widzę,} \end{array} \right]$ że papierosy są szkodliwe
 *ale to tylko mój $\left[\begin{array}{l} \text{żal} \\ \text{wiedza} \\ \text{widzenie tego w ten sposób} \end{array} \right]$

In the light of the present observations, the introduction of a formulation accounting for these data seems necessary. The strength of the verb/complement relation determining the possibility of denying the truth of the latter is reflected on the following scale:

26. regret	believe
resent	agree
.....	suspect
see	guess
know	

→ +
 IMPLICATION SUSPENSION

The present solution is only a sketchy representation of much more complex facts. As has been noted above the possibility of implication suspension with the predicates in question is determined by such factors as the Principle of Non-Coreferentiality and the objectivity of the complement proposition. Thus,

a fuller representation of a predicate scale can be suggested at this moment. One of the possible solutions is a diagram according to the following principles: the vertical axis is the Axis of Coreferentiality and ranges from the Coreferential to the Non-Coreferential, i.e. the experiencer vs. the performer of the denial. The horizontal Axis of Objectivity of the complement proposition ranges from subjective, i.e. the speaker's experience, to objective facts.

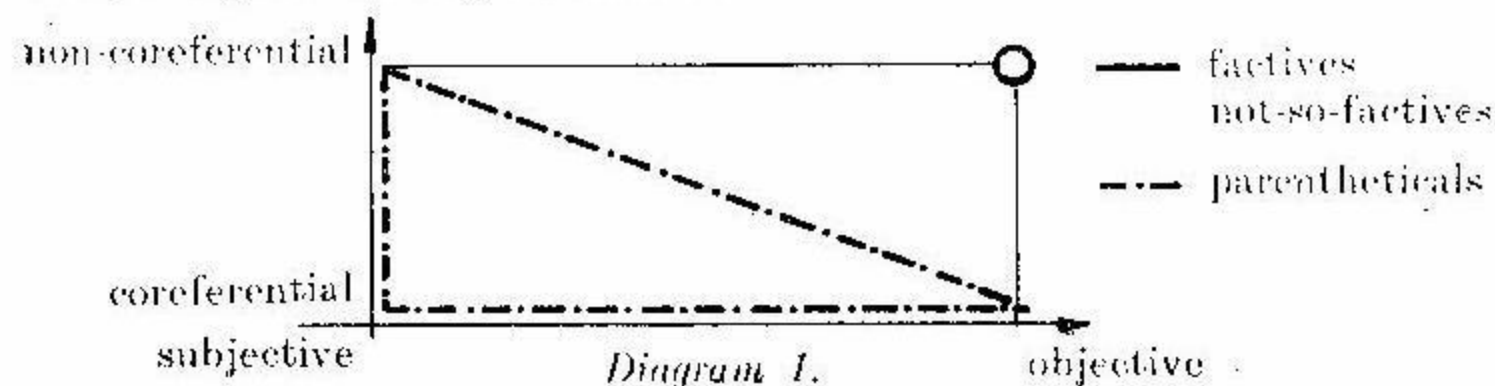
The procedures for marking the possibility of implication suspension of predicates on the diagram are as follows:

1. On each axis look for the value corresponding to a given condition of implication suspension. If the line connecting the two values is not parallel to either of the axes, their common valence is found at the intersection of the lines drawn from each of the two values parallel to the opposite axis. E.g. the valence of implication suspension for factives and not-so-factives equals the point at the intersection of two values: objective/non-coreferential.

2. If there are two points, i.e. bivalent functions of the value on the corresponding axes, the points are to be connected. For instance, two out of three values for parentheticals range from coreferential/subjective to coreferential/objective along the line parallel to the Axis of Coreferentiality.

3. If there are two or more furthest points indicating suspension valence — connect these points and shade the space delimited by them. This corresponds to the domain of implication suspension of given predicates. On my diagram parentheticals have their domain delimited by two lines ranging from subjective to non-coreferential and from coreferential to objective. Connecting the two valence points marks the domain of parentheticals as a triangle, thus wider than the one-point domain of factives and not-so-factives.

My final formulation of the predicate valence in implication suspension contexts is given in *Diagram 1* below:



Predicate valence in implication-suspension contexts.

To recapitulate, when a predicate refers to the present, its valence in implication-suspension contexts increases in accordance with the predicate type, i.e. the semantic relation with its complement, in the following manner:

1. with factives and not-so-factives the valence in implication suspension contexts equals one; it thus corresponds to a single point (a function of two variables on *Diagram 1*).

2. it increases for parentheticals (alleged non-factives) whose implication-suspension domain is delimited by two lines forming, after the two uppermost points are conjoined, a triangle designating the size of this domain.

As for the Polish equivalents of the predicates in question, it turned out that they behave in an analogous way, thus the present generalizations applies to the Polish corpus as well. The gradation in implication suspension of predicates might be of a more universal nature and it seems useful to check the universality of such categories as: objective/subjective and coreferential/non-coreferential. Intuitively, English and Polish do not differ in this respect, since notions like emotional attitudes, beliefs, guesses, etc. have corresponding lexical realizations in both languages. And my analysis has confirmed this hypothesis.

4. CONCLUSIONS

The analysis has demonstrated that the factive/non-factive dichotomy with its hybrid "not-so-factive" class does not gain sufficient support from either the English or the Polish data. The division is non-explanatory because implication exists with all the predicate groups examined, as their behaviour is at least partially compatible with the conditions set up by my definition of a factive verb. As to the strength of implication relation, it increases along the following scale: factives/not-so-factives — parentheticals according to the rule: the weaker the implication, the bigger the possibility of its suspension. Thus, the factive/non-factive distinction has proved incapable of capturing the predicate/complement relation since the array of pragmatic factors and semantic oppositions to be taken into account by a fully explanatory theory cannot be represented in terms of a simple dichotomy. A scalar arrangement of predicates has been selected as a plausible solution to the problem and the diagram presented above is one type of graphical representation of such a scale.

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