

Response to J.S.Petöfi

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Among the papers presented to this workshop, Prof. Petöfi's paper stands out as perhaps one of those richest in content. Following a clear exposition of some central issues in contemporary Logical Semantics, he has presented us with a valuable „anthology of quotations“ – a series of fundamental criticisms of some of the more widely publicized versions of Logical Semantics as applied to the study of natural languages. Limitations of time have inevitably made it necessary for Prof. Petöfi to leave out in his discussion a number of approaches relevant to our topic and the workshop's task at hand. But, one must bear in mind that Logical Semantics is by no means a unanimous or unified camp. So Prof. Petöfi has certainly had to make some hard choices. Due to the large number of questions addressed in his paper and the limited time available, I will have to limit my response to only a small number of the many important issues raised in his paper.

Following Prof. Petöfi's order of exposition, I start with Bierwisch's article „Psychologische Aspekte der Semantik natürlicher Sprachen“, a well chosen point of departure. Bierwisch succeeds in addressing precisely those issues which are of relevance for any linguist, trying to assess the relevance of Logical Semantics to linguistics. He throws in a number of pragmatic considerations as well in his discussion, and, as a whole, his approach is parole- or performance-oriented.

For purposes of exposition, I divide Bierwisch's article into two parts; *firstly*, his formalism for the representation of utterances, their contextual relations and their communicative intent. *Secondly*, his overview of the type of semantics that has its origins in the work of Gottlob Frege, and his criticism of that approach.

To start with, let us consider Bierwisch's three-layered pyramid of interpretation, intended to account for a linguistic *utterance* as conditioned by a given communicative purport in a given context. As can be seen from his schema, the utterance is taken as the basic unit, accumulating additional meaning as contextual and performative variables are successively instantiated.

This scheme makes allowance for a considerable number of variables which have to play a role in the interpretation of utterances and, presumably, none of these variables loses its value when we deal with text fragments from the corpora of languages no longer spoken. But, calling to mind the most likely potential users of the database, exegetes, translators and Biblical scholars in general, will they indeed find the scheme sufficient for their purposes? May we, possibly, anticipate a demand for an additional level of analysis, added to the interpretational pyramid and encompassing additional content, possibly even severely constraining choices at each and every of the lower levels? I have in mind e.g. some traditional terms of classification commonly used in exegesis.

The Song of Songs, from which illustrations for this particular topic were drawn, illustrates well some of the issues to be addressed. Now, what kind of a work is the Song of Songs? No lack of diverging answers there. What was its „Sitz im Leben“ in ancient Hebrew society? Is it a profane poem, or a collection of bits of poetry of varying age? A marriage song, or a song of spontaneous love, not sanctioned by societal institutions (so Gerleman)? Associated with the cult? Partly of Egyptian or Akkadian origin, conditioned by a different religious environment? The dealings of Ishtar and Tammuz perhaps? By origin connected with Canaanite religion? Or are we attending a „hieros gamos“ here? Such suggestions and others have been made. The exegete must surely take a stand on these issues and others. Terms like „context“ and „communicative intent“ will inevitably be conditioned by the choices made in the light of assumptions such as these, and the choices made may be inherited right down to the level of interpreting lexical units. Add to this the number of concepts connected with the Documentary Hypothesis. During the discussions here, wishes for the inclusion of such concepts as well as etymological information have been expressed. This is becoming a long list, but my question is: How much of this will we want to see in a truly useful database?

This is mentioned as an illustration of *practical* questions which might conceivably arise, – and the task supposedly being prepared by this workshop is an eminently *practical* undertaking; viz. the creating of a powerful database system from which scholars will want to retrieve information of varied character and for a multiplicity of purposes. In the light of that fact, how many of the variables given in Bierwisch's scheme would we like to see included as parameters for information retrieval? All of them? A richer set? Some of them perhaps? Or, possibly, a totally different formalism? The day will surely come when such questions will have to be faced. I leave such questions open as well as the question of the desirability and, indeed, the feasibility of appropriately coding for retrieval items like *utterances*, *context variables* and the rather elusive concept of *communicative intent*. Given the size of the corpus, the undertaking seems Herculean. And, with an eye to the wide divergences of opinion held by Old Testament scholars as to the context and communicative intent of the host of utterances in the corpus, it is hard to see how things of this nature can be dealt with to everyone's satisfaction.

Bierwisch goes on to give an outline of the salient features of that school (or schools) of Logical Semantics which traces its heritage back to the writings of Gottlob Frege. A common feature characterizing this school is the yet unfulfilled dream of integrating linguistics, semantics and logic into a single discipline. The dream is an old one, it goes back one hundred years to Frege's „Über Sinn und Bedeutung“. This article was part of Frege's endeavour to find a basis for mathematics in logic; a formalism appropriate for relating one purely formal system to another. The central concepts from Frege, on which Bierwisch bases his discussion, are *the concept of „logical form“*, *the intension/extension dichotomy* and *Frege's principle of compositionality*.

Bierwisch's definitions (p. 38 of his article) will suffice for our purpose here: „Die Bedeutung oder Extension einer Äußerung ist das, worauf sie verweist; der Sinn, bzw. Intension ist die Art, in der sie auf die Extension verweist.“ These are the traditional, time-honoured definitions. Next, as defined relative to extension and

intension, an utterance has a logical form, Frege tells us. And logical it is in the sense that it can be tested as to truth-functionality, i.e. an utterance can be either true or false. *Tertium non datur*. Finally, the Fregean notion of compositionality states that the intension of an utterance is a function of the meanings (the logical forms) of its parts plus the way in which they are combined, i.e. their syntax. The task presents itself. It lies according to Bierwisch (p. 37) „...im kontrollierten Aufbau formaler Systeme, bei denen die logische Form *lf* (und das heißt nach der oben getroffenen Annahme die semantische Struktur *sem*) mit ihrer syntaktischen Struktur *syn* zusammenfällt ...“.

Finally, add to this the requirement, that in order to be of interest within the Fregean scheme of things, an utterance must have a *logical form* which means that it must be truth-functional. Combining this with the above, we arrive at the equation, supposedly applicable to any given utterance (*u*):

$$lf(u) = sem(u) = syn(u).$$

Most linguists would be reluctant to accept statements of this kind. As linguists, we are, of course, concerned with the truth values of the statements we may make on matters linguistic. But we are not overly interested in the truth value of the utterances we use as our subject matter. After all, we deal with many kinds of utterances to which no truth value can be assigned. Imperative or performative sentences certainly lend themselves as easily to linguistic analysis as any other utterances. According to the Fregean school of thought and going by the book, such sentences would seem to lack logical form and there would, presumably, remain little hope of dealing with their semantics in any meaningful way.

Consider again the concepts of extension and intension. Bierwisch's description (p. 39): „...die Beziehung zwischen Intension und Extension [wird] bei dieser Betrachtungsweise zur Beziehung zwischen zwei komplexen Strukturen, und die Art dieser Beziehung genau zu bestimmen, läßt sich als eine mathematische Aufgabe formulieren.“

On the preceding page he has to say this on the concepts of the extension of an utterance: „Die Extension einer Äußerung sind also offenbar die Dinge, Beziehungen, Sachverhalte der Umwelt (im weitesten Sinne), auf die verwiesen wird. Und die Intension einer Äußerung kann als eine (komplexe) Regel aufgefaßt werden, die diese Dinge, Beziehungen und Sachverhalte identifiziert“.

Note here: In the *first* quotation Bierwisch describes the view held by many logical semanticists that the relationship obtaining between extension and intension can be construed as a relationship between two complex *structures*. So *structure* (definition begged) *is taken to be a property of extensions* here. From the *latter* quotation note the proviso „(im weitesten Sinne)“ – in the widest sense. But how wide a sense? Wide enough to encompass e.g. the story of Alice in Wonderland? And, considering examples such as the above, can we say that they possess extensional *structure* in any sense? Given the above-mentioned concept of a relationship between extensional structures and intensional structures, it is hard to see how any meaning can fruitfully be attached to such a concept of intensional structure in natural language. And Bierwisch, indeed, seems to have trouble with these concepts.

Bierwisch concludes that it is naive and erroneous to postulate some pre-existent classification of reality into objects, classes and states-of-affairs, i.e. a structure

which our consciousness reflects, and indirectly, our language reflects in some passive sort of way (p. 51): „... meine These ist nun, daß das innere Modell der Extensionsbereich sprachlicher Äußerungen ist, daß es ihren Kontext bildet und daß zu ihm die Äußerungsbedeutung gehört. Kurz, das worüber wir sprechen, ist das interne Modell, die auf die Realität projizierte Struktur.“ This, inevitably, leads him to the big question (p. 56): – „... ob die Unterscheidung zwischen diesen beiden Repräsentationen [Intension und Extension] damit nicht ein Artefakt wird.“

So the rather negative result of his discussion boils down to the assumption that intension and extension are both internal to the human mind and, evidently, any networks of relationships linking the two will be equally mind-internal. This, to me, is a timely and healthy scepticism as to the limitations of much of Logical Semantics as commonly applied in linguistics, and the relevance of the views discussed to the task of our workshop seems highly questionable. In the light of Prof. Petöfi's exposition, I imagine, that he, too, shares Bierwisch's doubts.

At the end of his expositon, Prof. Petöfi suggests a formalism for dealing with simple propositions. Now, with some reservations, these might be compared to the „infons“ of Situation Semantics, the „kernel sentences“ as defined by Rulon Wells, Zellig Harris, early transformational-generative grammar as well as the kernel sentence concept central to Nida's theory of translation. Some questions arise here:

1. How do units in the system combine with each other to form more complex wholes?
2. How do units in the system combine with negation?
3. Why are the parameters of time and space (st, sl) placed *outside* the formula?
4. Can propositions occur in the argument slots in this formula?
5. Is the *order* of the unit slots fixed?
6. Using [F] as a cover symbol for nouns, verbs *and* conjunctions seems to call for some explanation.
7. Can we be certain, that *every* natural language word-class is vouched for in this system as Prof. Petöfi states?
8. A further specification of the term „basic functor“ – as described in Prof. Petöfi's paper and used in his interpretation of the beginning of the Song of Songs – is needed. How large a set of these is envisaged?

I shall try to indicate the possible relevance of some of these questions in the light of Prof. Petöfi's application of his formalism to the opening verse of the Song of Songs. Here we find a wealth of information condensed into one formula. Participants are indexed, performative aspects are accounted for, and in each case we find a kernel proposition expanded to a proposition by replacing „constants“ by „basic functors“. So, underlying the innocuous-looking *yšqny mnšyqwt pyhw*, five propositional kernels and five propositions are lurking. One may again ask: Too much or too little? Certainly, if all of the Hebrew scriptures were to be dealt with in this way, the amount of analysis to be carried out boggles the mind. Not that I hold this information to be irrelevant. The formalism, however, is extremely space-consuming, and it certainly does bring to mind e.g. some of the work published by adherents of the school of Generative Semantics. Taking a closer look at the three words of the Hebrew text, we see that in the formalism adopted, the last two words

(*mnšyqwt pyhw*) are inserted as *arguments* in the last proposition listed. Now, the generative semanticists would not have been happy with this at all. Their purpose was in many ways similar to what Prof. Petöfi's formalism is intended to accomplish, i.e. to do justice to the semantic content of an utterance by making explicit its underlying or implicit propositions. The number of these tended to grow to such proportions as arguments were replaced by propositions, that Prof. Petöfi's solution seems quite moderate in comparison.

Prof. Petöfi's lecture referred to R.E. Murphy's commentary on the Song of Songs. And Murphy finds it relevant for our understanding of the book to remind us that the ancient Egyptians practiced nose-kissing as well as mouth-kissing. And we may well use a Yes/No question as a tool for eliciting truth values and imagine an Egyptian woman asking another: „Does he kiss you with the kisses of his mouth?“, to which the other might conceivably reply „No, we prefer nose rubbing“. Now, it takes a proposition to separate the true from the false, and I can well imagine linguists who would insist on seeing an underlying proposition here. Similar arguments might be put forward as regards the terms of time, space and participant indexing in Petöfi's formalism. Another answer to the above question from a Hebrew housewife might be: „No, he stopped doing that long ago“. Or: „No, now he's running after the servant girls all the time“. If we put our trust in Yes/No questions as indicative of the number of implicit propositions, we would wind up with a very rich description indeed. I am not encouraging this, though the approach seems to have its merits. We must draw the line somewhere. The question is: Where? The question also remains, how much of the theorizing we have been indulging in here will survive the encounter with the computer. It is known to be a sobering experience at times. Face to face with the purring machine, many a glorious edifice of thought has come a-tumblin' down like the walls of Jericho did at the blast of Joshua's trumpets. That, of course, was delightful news to the Hebrews. The European taxpayers, who are now paying us for discussing grand theory, will possibly be somewhat less delighted.

Abstract:

Given that the stated end-purpose of our workshop is the creation of a data base of the Hebrew Scriptures tagged for retrieval by semantic criteria, an attempt is made here to assess the adequacy to that task of the ideas discussed in Professor Petöfi's outstanding paper. The feasibility of replacing linguistic analysis with aprioristic logic-inspired schemes is briefly discussed as well as the applicability of Petöfi's formalism to the data. A plea is entered for a less cumbersome, more viable and linguistically oriented way of presentation.

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