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THE COGNITIVE STATUS OF METAPHORS  
(English Summary of Hebrew Ph.D. Thesis)

by

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Applied Logic Branch  
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SCIENTIFIC REPORT NO. 8

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SUMMARY

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Introduction  
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The purpose of the thesis is to provide an explication (in the Carnapian sense) of the concept of metaphor, using relatively new logical and linguistic methods. My treatment of the subject matter refers to the cognitive aspects of metaphor exclusively, while the aesthetic aspects involved are touched upon only sporadically and indirectly. Structurally, Chapters One and Two deal, roughly, with what Carnap calls the "clarification of the explicandum", while Chapters Three and Four attempt an introduction of the explicatum in a narrow and precise systematic framework. Since there is, I think, no theoretical skeleton adequate for the treatment of the concept of metaphor, I have tried here to outline such a frame, and to provide a semantic meta-language for natural languages.

Chapter One  
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The discussion in this chapter centers around two questions:

- (i) Is metaphor a universal of language?
- (ii) Does metaphor belong to language (*langue*) or to speech (*parole*)?

As to (i), I argue that the following conditional statement U

U : for all x, if x is a natural language then x contains some  
metaphoric sentences (phrases)

has the status of a theoretical law within the framework of theoretical linguistics. A theoretical law is, then, to be identified with a universal of language. In order to justify methodologically the formulation of U, I have rejected, first of all, the objections raised by thinkers such as Bloomfield, Sapir, and Whorf, to the use of the unrestricted quantifier in U. As to the theoretical justification for the use of this unrestricted quantifier, I argue that since the phenomenon of metaphor is closely connected with the creative character of natural languages, and since the creative character is the central aspect of the structure of such languages, U, in fact, formulates a principle concerning the structure of natural languages in general. With respect to the creative aspect of language, I, following Chomsky, distinguish between :

- 1) Creativity governed by rules (generativity).
- 2) Creativity that changes rules.

and argue that metaphors have to do mainly with the second sense of the creative aspect, in virtue of their changing the meaning postulates of lexical items in the language concerned.

Following this argument, I discuss various distinctions concerning the universals of language, such as substantial vs. formal, and diachronic vs. synchronic. I conclude that some further clarification of the relation between language and speech is needed if these distinctions are to be applied satisfactorily to the interpretation of U.

As to (ii), my argument is that the distinction between language and speech does not exhaust all the required distinctions of a linguistic theory. In this context I point out some problems involved in dealing with registers and with "the language of poetry". It seems to me, however, that, on the whole, the suitable framework for most of the topics involved in the phenomenon of metaphor is a semantic theory of natural languages which is part of a more general theory of linguistic competence. It also seems to me to be justified to postulate as a condition of adequacy for every semantic theory of natural languages that it will be capable of describing and explaining the linguistic phenomenon called metaphor.

## Chapter Two

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Chapter Two begins with the statement that every metaphor is a non-standard mode of speech. I examine this statement through a discussion of two other statements argued for in the literature:

- (i) Every metaphor is a transposed mode of speech (Carnap).
- (ii) Every metaphor is a category mistake (Turbayne).

As to (i), it is clear from Carnap's characterization of the concept of transposed modes of speech that this concept is based on the notion of "aboutness." With regard to the latter concept, I distinguish between two theses, following Frege and Carnap.

- I. The asymmetry thesis : There is an asymmetry among the descriptive terms (expressions) occurring in a sentence, such that the sentence is about the nominatum of only one of them.
- II. The thesis of symmetry: There is a symmetry among the descriptive terms (expressions) occurring in a sentence such that the sentence is about the nominata of all of them.

According to (I), statement (i) is rendered false since counterexamples can easily be brought against it. According to (II), statement (i) is correct, but may appear to be trivial. I have tried, however, to show that

statement (i), in the light of thesis II, can be understood non-trivially.

As to (ii), I discuss two statements representing two major streams in the theory of syntax-semantics:

1. Every category mistake is, potentially, a metaphor (Turbayne).
2. Sentences violating selectional rules are candidates for metaphoric interpretations (Chomsky).

The discussion of (1) leads to the following formulation : Let  $F[\ ]$  be any given linguistic environment ( $F[\ ]$  belongs to  $L_0$ ), and let  $E_1, \dots, E_n$  be any given expressions (belonging to  $V_0$ , the vocabulary of  $L_0$ ) such that  $E_1, \dots, E_n \in K_n$ .  $K_n$  is, according to Ryle, a category containing  $n$  expressions. Then, if a substitution of an expression  $E_{i_0}$  ( $1 \leq i_0 \leq n$ ;  $E_{i_0} \in K_n$ ) in  $F[\ ]$  results in a meaningful expression (sentence)  $F[E_{i_0}]$ , and each replacement of  $E_{i_0}$  with  $E_j$  ( $E_j \in K_n$ ;  $j \neq i_0$ ) results in a meaningless expression (sentence)  $F[E_j]$ , then  $F[E_{i_0}]$  is a metaphoric expression (sentence). Accordingly,  $E_{i_0}$  will be called, following Black, the "focus" of the metaphor and  $F[\ ]$  its "frame".

In spite of the temptation to accept the above statement, its obvious shortcoming is evident immediately : there is, as yet, no way of classifying the terms (expressions) of a language into categories, and the principle of

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mutual replacement, upon which the classic approach to this problem is based, is clearly a begging of the issue at stake.

The discussion of Chomsky's approach (statement (2)) is centered around three sub-questions:

- a. Can (or do) strings violating the rules of strict subcategorization receive metaphoric interpretation?
- b. Is a violation of selectional rules a necessary condition for a string to receive a metaphoric interpretation?
- c. Is a violation of the selectional rules a sufficient condition for a string to receive a metaphoric interpretation?

Question (a) is answered as follows: in the cases of a syntactic deviation with regard to strict subcategorization rules, the deviant expression which is granted a metaphoric interpretation is granted such an interpretation as a result of some special contextual circumstances. In such cases the metaphoric interpretation is to be ascribed to the utterance of the expression and not to the linguistic expression proper.

Question (b) is, in fact, left as an open question. My ultimate tendency, however, is to argue that a violation of selectional rules is a necessary condition for the linguistic entity (language), as opposed to the utterance (speech) to be ascribed the property of being metaphoric.

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Question (c) is answered, categorically, in the negative, as there is, I think, no way of providing an eliminative definition (a sufficient condition) for the concept of metaphor.

This chapter closes with a discussion of some techniques for the discovery of non-standard modes of speech connected with metaphors, while concentrating mainly on the Paradigm Case Argument. As for the philosophical aspect of the Paradigm Case Argument, I argue that it can be regarded as an introduction to a justified demand for a theory.

### Chapter Three

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In Chapter Three I suggest a frame for a semantic meta-language of natural languages capable of relating to phenomena such as metaphors. My basic assumption is that cognitive meaning relations are, essentially, logical relations, and in particular, inductive relations, in the sense of logical probabilities. My aim is to identify the explicata of the concept of meaning, (or of the concept of meaning constituents) with the concept of positive initial-relevance, according to Carnap's use of the latter notion. The introduction of logical probabilities into a semantic

meta-language which admits deductive meaning postulates alone.

The starting point in constructing the proposed meta-language is in a Gedankenexperiment in which a subject  $X$  is presented with a finite list  $A$  of predicates, belonging to the vocabulary  $V_L$ , designating properties or relations. Let  $h$  be the hypothesis that the predicate 'Q' is applicable to an object  $y$ ; let  $e_0$  be the tautological evidence ( a set of meaning postulates in the Carnapian sense); let  $F_i(y)$  be the fact that the property designated by  $F_i$  ( $F_i$  belongs to the list  $A$ ) is applied to the object  $y$ . Now the subject  $X$  has to indicate whether his degree of credence in the hypothesis  $h$ , given the tautological evidence  $e_0$  and the particular evidence  $F_i(y)$  is greater than, equal to, or smaller than his degree of credence in  $h$  given the tautological evidence  $e_0$  alone. In symbols:  $X$  is asked which of the following three relations holds:

- (a)  $Cr_X(h, e_0 \wedge F_i(y)) > Cr_X(h, e_0)$
- (b)  $Cr_X(h, e_0 \wedge F_i(y)) \sim Cr_X(h, e_0)$
- (c)  $Cr_X(h, e_0 \wedge F_i(y)) < Cr_X(h, e_0)$

If case (a) holds, we shall say that  $F_i(y)$  is of positive initial relevance to  $h$  (for  $X$ ), and regard  $F_i$  as a meaning constituent of 'Q' (for  $X$ ). Thus, the given set  $A$  of properties and relations will yield a subset  $A'$  which includes all the predicates designating properties which, for  $X$ , are

positively-initially-relevant to  $h$  (i.e. which are constituents in the meaning of 'Q'), given the evidence  $e_0$ . On this set  $A'$  we shall impose a partial order relation by the union of the relations "more relevant than" and "equally relevant to". In this way the set  $A'$  will be ordered as a sequence  $\alpha$ , which will be termed the meaning (constituents) sequence of 'Q', or the mother sequence of 'Q'. If in the mother sequence  $\alpha$  there are some incompatible properties, we shall generate out of  $\alpha$  a set of derived sequences such that in each of them there is only one of every set of incompatible properties, in such a way that the original relative ordering among all the properties is preserved.

By making use of this apparatus, the above description of which is but a rough sketch, I proceed to define a series of basic semantic relationships among which are homonymy, polysemy, complete and partial synonymy, family resemblance, hyponymy and antonymy; and, further, I propose an explication of primary and secondary meaning.

Up to now I have discussed the means for constructing the meaning sequence of 'Q', 'Q' being isolated from all linguistic environments. The next stage then, consists in supplying  $X$  with a certain linguistic environment in which 'Q' occurs, as a further evidence to the evidence already given, namely to  $e_0$ .

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The relationship between the meaning sequence of 'Q' when isolated from all linguistic environments and the meaning sequence of 'Q' when given a certain environment as further evidence, provides, in my view, the clue to the explanation of the nature of metaphor. I argue that, in the case of a metaphor, the addition of the linguistic environment to the given evidence radically changes the meaning sequence of 'Q' ('Q' being the "focus" of the metaphor) when isolated from all linguistic environment. In addition to the treatment of the cognitive meaning constituents of a predicate 'Q' I introduce a suggestion for the handling of some of the non-cognitive meaning constituents (such as connotations), and then, use the results of the entire process to provide my explicatum for the concept of metaphor.

My proposed approach has, I think, wide implications for the formulation of a theory of semantics which is capable of giving a proper account of the way in which the meaning of words in a sentence is related to the meaning of these words when given in isolation (or to the way in which it is possible to provide an interpretation to an infinite number of sentences by finite means). The basic idea is that there is no need for combination rules along the lines proposed by Katz and Fodor or Weinreich, since I regard the process of providing an interpretation as being essentially a process of erasing some meaning constituents out of the

meaning sequence of an isolated term in the light of further evidence concerning a linguistic environment in which this term occurs. In the case of metaphors, the linguistic environment itself suggests meaning constituents to the focus of the metaphor, which are different from the meaning constituents the term concerned has when given in isolation.

Towards the end of the chapter, I move on to deal with semantic fields as an attempt to achieve a more economical description than the one previously argued for.

#### Chapter Four

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This chapter centers around four main questions:

- (i) Is it possible to translate a metaphoric sentence into a standard one?
- (ii) Is it possible to put forward standard propositions by means of utterances of metaphoric sentences?
- (iii) What type of information is conveyed by metaphors, if any at all?
- (iv) Is it desirable, or indeed possible, to regard theoretical sentences as metaphoric sentences?

In the discussion of (i), I review some well-known positions (the interaction theory, and what I call the "surplus approach") which argue that a metaphor is untranslatable into a literal sentence without cognitive residues (cognitive residues are understood as loss of insight and loss of a set of connotations); and, further, that a sentence "contaminated" by metaphor, unless it appears in some special contextual circumstances, cannot, in principle, be translated in such a way that it will be a possible candidate for inclusion in a regimented sub-language of the natural language in which there corresponds to every sentence a proposition. I then suggest a few ways of overcoming the difficulties which give rise to these positions, and try to defend the cognitive thesis of the metaphor, the essence of which is that a metaphor can be, in principle, translated into a standard sentence without any cognitive residues.

In answering (ii), I carry Austin's treatment of speech acts further than he and his followers did, with the aim of applying it to "parasitic" uses of language as well as to normal ones. I distinguish between two types of products of speech acts: designed products, and by-products, and argue that speech acts result in designed products, provided certain conditions are satisfied. These conditions (guarantees) are threefold:

- (a) Linguistic (or logical) conditions; i.e., syntactic and semantic rules relating to the abstract linguistic entity abstracted from the utterance;
- (b) Contextual conditions, including the circumstances in which the utterance occurs. In this group of conditions I include also Grice's and Strawson's situation conditions.
- (c) Conditions which are connected with social expectations and conventions.

Certain combinations of (a),(b) and (c) provide sufficient conditions for a successful speech act (i.e., one that results in a designed product). It is noteworthy that there are many possible substitutions among these conditions, such that the absence of sufficient guarantees (conditions) from one group can be made up for by conditions from another.

In the case of metaphors there is a deviation with regard to, or lack of fulfillment of conditions of type (a). My argument, however, is that in these cases fulfillment of certain conditions of type (c) can be substituted for the deviant or absent ones, and thus render the metaphor capable of asserting a proposition. The fact that there is, in the case of metaphors, a substitution between conditions of types (a) and (c) is of great significance for the question of the cognitivity of metaphors, since both these groups, unlike group (b), stand for socially institutionalized

guarantees, and thus are in certain respects "objective conditions", whereas the conditions included in group (b) are, in fact, "subjective" ones. A rather important role with regard to the guarantees of type (c), I ascribe to what Hungerland refers to as "presumptions of normality".

In the sequel I attempt to bridge between the topics concerned with questions (i) and (ii), presented in the beginning of the chapter, by making use of the pragmatic system of Arne Naess. Adopting his concepts of "normal interpretation" (NInt) and "precision" (Pr and Pr'), I formulate the eliminability requirement of a metaphor by a literal sentence (expression) as follows : Given a literal sentence U and a metaphoric sentence T, it is required by the cognitivity thesis that  $Pr(U,T)$ . This formulation then undergoes several improvements and alterations, which yield, as a by-product, a characterization of the concept "less metaphoric than". Some advantages of this system, in my view, are, among others, that it is operative, and lends itself to almost direct testing.

In answering (iii), I suggest definitions for "metaphorically equivalent" and for "more metaphorically informative than". Let "x is y" be a given sentential form, where x and y are variables representing members of two sets of words, X and Y, respectively (e.g., X is a set of color names, and Y is a set of animal names). Let  $x_1$  be a given (fixed) member of X.

Now it is possible to order the set  $Y$  according to the degree of appropriateness of each of its members to its substitution in the sentential form " $x_i$  is  $y$ ". The degree of appropriateness can be determined and ranked according to several psychometric methods. Let  $f(x,y)$  be a measurement scale such that  $f(x_i, y_i) > f(x_i, y_j)$  if and only if  $y_i$  is more appropriate to be substituted in " $x_i$  is  $y$ " than  $y_j$  (relative to a subject); and analogously to the case when  $y_i$  is fixed and  $x_i$  and  $x_j$  are being compared. Using this method we shall define:  $x_i$  is equivalent to  $x_j$ , relative to a domain  $Y$ , i.e.,  $x_i \sim_Y x_j$ , if, for every  $y \in Y$ , we have  $f(x_i, y) = f(x_j, y)$ . If the connection between the domains  $X$  and  $Y$  is such that a sentence resulting from the substitution of the members of  $X$  and  $Y$  in the sentential form under discussion commits a category mistake (and be this concept introduced as it may), we shall say that, under the conditions of the above definition,  $x_i$  is metaphorically equivalent to  $x_j$ , relative to the domain  $Y$ .

The  $C$ -kernel of  $Y$  relative to  $x'$  ( $x' \in X$ ), i.e.,  $\text{Ker}(x', Y, C)$ , is defined as the set of all members of  $Y$  for which  $f(x', y)$  equals a constant  $C$ . Namely:  $\text{Ker}(x', Y, C) = \{ y \in Y \mid f(x', y) = C \}$ . In other words, the  $C$ -kernel of  $Y$  is the set of all members of  $Y$  which are indistinguishable from the point of view of their appropriateness as substitutions in the sentential form concerned. The relation of "more metaphorically

informative than" will be defined as follows :  $x' \succ_Y x''$  if, for every  $C$  and for every  $y \in Y$ , there exists :  $\text{Ker}(x', Y, C) \subseteq \text{Ker}(x'', Y, C)$  (where  $x', x'' \in X$ ), and a substitution of any members of  $X$  and  $Y$  in the sentential form "x is y" commits a category mistake.

With respect to question (iv), I try to point out a possible reconstruction of the controversy between realists and instrumentalists, in the following way :

The Realist : It is advisable to treat theoretical sentences as literal sentences, within the framework of an adequate theory of general linguistics.

The Instrumentalist : It is advisable to treat theoretical sentences as transposed modes of speech of the metaphoric type, within an adequate theory of general linguistics.

I then attempt to show that it is the instrumentalistic approach, in its reconstructed form, which has the greater chance of being feasible with respect to the scientific register of natural languages. At the same time, I reject as highly obscure Mary Hesse's suggestion to regard a theoretical explanation as a metaphoric re-description of the explanandum.

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