Analytic/Synthetic and Semantics
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ANALYTIC/SYNTHETIC AND SEMANTICS.

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I.Introduction.

In this paper we enumerate the main functions in terms of which semantics is justified. We remark that primarily the function of representing explicit verbal definitions is taken into account by most authors when constructing a semantic system. This is based on the hypothesis that explicit definitions mirror semantic relations. We ask if this is justified. Are the explicit verbal definitions not derived from a synthetic system of interrelations between terms ?

To answer this question we look at a set of explicit verbal definitions. These fall into three classes. From the analysis of each we make the point that each type is synthetic. By referring to the cognitive tendency to simplify information, we hypothesize an explanation for the impression of analyticity of type II_B definitions.

Subsequently we sketch our approach to a methodological synthetic semantics, and illustrate with an example. Our results are corroborated by confronting our system with a set of explicit definitions from our informants.

II. Explanation and semantics.

In the literature on semantics, a lot of adequacy requirements appear : efficient realizations of deductions (e.g. Shank 1975, p.37); question answering

and paraphrasing (e.g. Winograd 1973); translation
(Steiner 1975); resolving ambiguity (e.g. Katz); ex-
plaining analogies and differences between sentences
(e.g. Norman and Rumelhart),... . The most important
function, however, for semantic systems, or that
which seems to be taken most strongly into account
by semanticists, is without doubt : the explicit
verbal explanatory behavior. In the work of e.g.
Katz, Shank, Hays, Winograd, Norman and Rumelhart,
Weinberg, Jackendoff and Lakoff, the explaining of
verbal terms (sometimes called concepts) is basic.
All the other roles mentioned above are only seconda-
ry.

Some rare authors have criticized this. Thus
Minsky (1975, p. 114) remarks that it is not neces-
sary that the semantic system explicitly reflect
definitions. Wilks (1975, p. 40), moreover, warns
against the naive view that by writing terms in upper
case letters, we are departing from natural language
to some more basic cognitive or denotative layer.

In any case, for semantics the interrelations be-
tween the terms used in actual speech are of central
importance. Which combinations are normally expected
in which contexts ? Which are not ? Here, the crucial
question is, what is the epistemological status of
the interrelations and combinations ? Are the expli-
cit verbal definitions the basis for the interrela-
tions between the terms and their signification ? Or
should we take the actual combinations of terms in
normal conversation as our point of departure ? In
this case the explicit verbal definitions are derived
from the primary system of interrelations of terms
for the purpose of inducing in the listener a correct

hypothesis on the signification of a term (note 1).
    In order to answer these questions we want to
examine some verbal explanations.
(1) "The atmospheric conditions have been very unfa-
    vourable lately" said Owl.
    "The what?"
    "It has been raining" explained Owl.
    "Yes" said Christopher Robin "It has".
    (A.A. Milne, Winnie the Pooh, 1961, p. 140) (no-
    te 2)
(2) "That is Jacques" said Mike.
    "Who?" asked daddy.
    "He is that child who always finishes first with
    his reading." answered Mike.
    (note on a conversation)
(3) Bachelor: human, male, who has never married.
    (Katz)
(4) Brother: male sibling. (A. Wierzbicka 1975, &:
    classical method)
(5) Man: animate, +humanness, +sex, v marriage
    (Steinberg 1975, p. 37)
(6) Cube: object, manipulable, rectangular (Winograd
    1973, p. 174)
(7) To eat: ingest an object after bringing it into
    the mouth with an instrument (this is an infor-
    mal translation of Schank's formal definition of
    "eat"; Schank 1973, p. 201)
(8) Grandfather: someone who is thought of as father
    of X's mother and father (Wierzbicka 1975, 3)
(9) Politics is dirty intriguing between big bosses
    behind the scenes (De Volkskrant, 19 July '75)
    From all these verbal explanations of the terms,
it is clear that the explanation is given by relating

(or substituting) the term with other terms which are
contextually (physically or psycho-socially) related.

(3), (4), (5) and (6) (set I) differ from the o-
thers in this way: in the explanation only a set of
juxtaposed terms is introduced, and no interrelations
between the several juxtaposed terms are specified.
As far as the relation between the explicandum and
each term in the explicans is concerned, we have
inclusion.

The other explications (Set II) are much richer.
Relations between the terms in the explicans are also
expressed. As a consequence, other relations than in-
clusion relations do appear between the explicandum
and the explicans.

In set II we also note an important difference be-
tween (1) and (2) on the one hand and (7), (8) and
(9) on the other. It is true that in both sets the
explication proceeds by relation the explicandum (E)
to a certain structure of terms. This construction
can be arrived at in two ways: either (II_A) this
explanative construction can be the result of an
operation with the explicandum (E) as a "hypothesized"
argument, in other words by its actual functioning,
or by indicating a result of its functioning it is
explained, or (II_B) the explicandum E can be the
hypothesized result of the construction which is the
explicans.

In any case the explicans is always a construc-
tion by means of which is hoped that the listener
will be able to make a successful hypothesis about
the signification of the term. By introducing addi-
tional constructions it is possible to help the
listener to control the fruitfulness of his hypothe-

sis about the signification. Another important con-
sequence is that there is a possibility, which
without doubt is generally true, that there are
several ways the listener can be brought to a success-
ful hypothesis on the signification of a term. This
means that a pluralism in the successful explicit
verbal behavior is possible.

This ties in with Myhill's view that every analy-
sis of a certain term is a creative hypothesis
about its possible connections with other terms. An
analysis is a construction of type II_B. Examples (7),
(8) and (9) are analyses. (1) and (2) are construc-
tions of type II_A.

An interesting question is how to explain the hu-
man tendency to look at constructions of the second
type (II_B: explicit definitions) as necessary, in
other words as analytical and even complete and uni-
que. On the other hand, the plurality and the syn-
thetic character of the type II_A explications is
broadly accepted.

The explanation of the dissymmetry in the evalu-
ation of types II_A and II_B could perhaps be explained
by referring to (a) the praxeological principle of
multiple efficient use of an element $x \cdot$(type II_A) and
(b) the cognitive simplification tendency of hypothe-
sizing only one efficient way to construct the ele-
ment x (type II_B). This simplification hypothesis
seems to be deeply embedded in human cognition, and
perhaps it explains why the fundamental arguments of
Quine and others on the synthetic character of all
definitions have been overlooked by most contemporary
semanticists. Perhaps a further reason is that it did
not seem possible to do semantics when rejecting the

analytic/synthetic distinction. We believe that a
solution for this problem can be found, if we keep
in mind the point already made : the primary task of
semantics is to determine interrelations between
terms as they occur in certain contexts, for certain
groups of speakers. These relations are evidently
synthetic and the system of interrelations is dyna-
mic. Given such a system, verbal explanations can be
derived as well as all the other types of semantic
functions we listed initially. In what follows we
want to make a sketch of some work done in this
spirit.

III.A synthetic semantics.

We have tried to construct the semantics of the
language of a group of drug users along the prin-
ciples just described (note 3). The problem we met
was that one very quickly gets a very complex system
of interrelations of terms. Here the point of cer-
tain authors - (e.g. L. Apostel 1967) that a theory
of semantics must be rooted in pragmatics - became
convincing. To get a non-arbitrary structure in this
clumsy set of interrelations it seemed fruitful to
split it up according to the pragmatic situation the
terms were used in.

This presupposes the introduction of certain
praxeological principles. We cannot discuss them
here in detail (note 4). However, applying these
principles on the set of contexts in which the terms
were used, we obtained four types of situations.
These types are :
    (1) acquisition of "stuff"
            (a) by buying

       (b) by getting it free

   (2) physical operations on stuff (cutting, etc.)

   (3) smoking

   (4) the evaluation

In each context type we must differentiate from a praxeological point of view the several roles the actors can have. These roles are :

   (1) dealer

   (2) drug user

       (a) a customer of the place

       (b) a strange drug user

   (3) a stranger (not a drug user)

Taking these praxeologically defined categories into account, we get (not including the subcategories) twelve combinations. Each combination (if all information - perceptual, verbal, social and emotional - is introduced) is rather akin to Halliday's registers or Minsky's frames. In practice some of these combinations, viz. registers, can be empty in the sense that we do not have information on them from the soft drug users: our informants.

If we apply these frames to the information set we have of the drug user, we get a more manipulable quantity and therefore more manipulable constructions. Very striking is the discovery that certain terms which seem rather synonymous (e.g. terms as 'stuff' and 'shit') are used in different 'frames'. 'Stuff', for instance is mostly used in the interaction between the customer and the dealer (all this is verified for our informant group.) The term 'shit' is mainly used in the evaluation among customers and never by the customer when buying it from the dealer.

In the evaluation frame, we see that the term
'shit' is mainly used in contexts of evaluation of
(a) the dealer, (b) the place where is smoked and
(c) the shit itself. In the evaluation of the dealer
it is stressed that a dealer knows everything about
shit, that he has good shit and that he does not
cheat as far as shit is concerned. In the evaluation
of the stuff itself it is referred to as being "good"
and "soft"; the price is considered interesting as is
its origin; the physical consequences being stoned,
being ill, etc. - are referred to also.

In a simplified way we can introduce the follow-
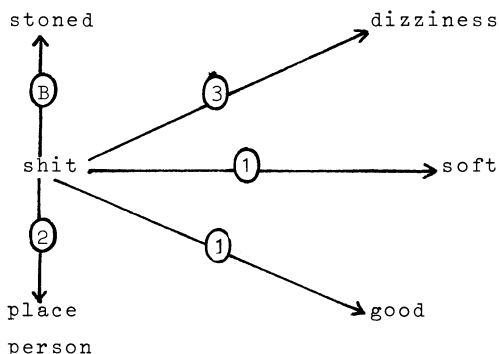ing model (fig. 1) for the above evaluation of 'shit'
(note 5).

fig. 1

The following conventions are here introduced:

 exemplification relation

 relation indicating origin

 indication of causality

At a certain point, after collecting our corpus,
we arranged for certain people to enter the group of

informants and ask them for some explicit definitions
of terms.

We did this in order to control our construction
system. In this way we could see if our system of
interrelations describing the information we got from
informants also made it possible to explain the expli-
cit definitions produced by the informants. In this
way it would be possible to falsify or to corroborate
our basic hypothesis that the definitions are derived
from the system of interrelations.

The sample of the definitions we obtained for
'shit' are in this respect very instructive. We got
chiefly the following results.

Question I: What is shit?

Answers   : I. Relaxing agent by which you get
                 stoned.

         II. hash.

        III. stuff.

         IV. Something to smoke. If used in
                 small quantity you have a lot of
                 fun. If used in large quantity
                 you sometimes become passive.

Already from the simplified evaluation subframe of
shit (fig. 1) we can derive most of answers I and
IV.

IV. Conclusion.

We hope with this short paper to have indicated
some lines of development for synthetic semantic
systems. To prove their adequacy, it is of course
not enough to indicate how natural definitions and
explanations can be derived from the system of inter-
relations; the possibility of executing the other

functions of semantics must also be proved.

Notes.
(1) On an extensive treatment of 'meaning', 'signifi-
cation', etc. : see Vandamme 1972, 1975a, 1975b.
(2) We take this from A. Wierzbicka 1975, 1.
(3) For a more extensive treatment of our method and
results : see F. Vandamme and P. Frericks (1975),
F. Vandamme and P. Frericks (to appear).
(4) We discuss this more thoroughly in "Logic of Ac-
tion and Semantics" (to appear in Communication &
Cognition 1976).
(5) In a more detailed description of a frame, we
see that it can be fruitful to have references to
other frames too.

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