214. The role of lexical data in semantics

1. Introduction
2. All lexical content is predicate
3. Reifications and object-orientedness
4. Satisfaction conditions
5. Literature (a selection)

1. Introduction

To the layman, semantics is word semantics. When a politician says that a certain issue is “merely semantic”, he means that it boils down to a question of lexical meaning, implying that lexical meanings are definable at will and thus never a matter of consequence. This is not the opinion of the majority of linguistic specialists. Many authors in the past, beginning with Plato in his dialogue Cratiylus, have thought that, indeed, word meaning is the primary object of research in semantics. Equally many, however, have defended the view that word meaning is subordinate to sentence meaning. It is fair to say that nowadays most linguists hold the latter view: they agree that meaning is primarily a property of sentences, not of words, although, of course, the meanings of the words occurring in a sentence are crucial to the final product, the meaning of the sentence as a whole. There is, moreover, a widespread consensus to the effect that word meanings are not definable at will, but are so-
cially and cognitively robust, and possess an internal structure that is subject to universal constraints. Nor are word meanings in-
sequential for the practical realities of life, as
any lawyer will confirm. In actual fact, word meanings, as fixed in the minds of competent
speakers, are both incredibly robust and in-
credibly subtle and nuanced, not at all the kind
of superficial and negotiable object painted
by politicians and other representatives of
power.

The twentieth century has seen an enor-
mous amount of work done in lexical seman-
tics (though an even more daunting amount
of work remains to be done: the lexicon still
has to yield most of its secrets). In the present
article we shall look more closely at some cen-
tral aspects of word meaning, and in particular
at the contribution made by word meanings
to sentence meanings.

2. All lexical content is predicate
content

It pays to assume a level of semantic descrip-
tion at which all lexical content is regarded as
predicate content, irrespective of the word
classes involved.

2.1. What is a predicate?

But what is a predicate? Let us say that a predi-
cate is a, possibly complex, linguistic expres-
sion denoting a, possibly empty, class of entities
or pairs (triples, n-tuples) of entities. Thus, the
predicate dog denotes the class of all entities
that satisfy the conditions of doghood. The
predicate have a bank account denotes the class
of all entities that satisfy the conditions of hav-
ing a bank account to their name. The predi-
cate love denotes the class of all pairs of entities
\((a, b)\) such that \(a\) satisfies the conditions of
having a loving attitude with regard to \(b\). And
the predicate unicorn denotes the class of all entities
that satisfy the conditions that go with
being a unicorn, even though there aren’t any.

These “definitions” are not meant to be seri-
sous. In fact, they are circular, as the reader
will have noticed, in that the definiendum oc-
curs again in the definiens. How to give ade-
quately, non-circular semantic definitions of
predicates is an extremely complex matter, as
lexicographers know well. More will be said
about this question in section 4 below. The
technical term for such conditions is satisfac-
tion conditions. One may, therefore, say that

a predicate is semantically defined by the sat-
isfaction conditions associated with it. The
satisfaction conditions of a predicate consti-
tute its meaning.

A predicate may be primitive or non-primi-
tive. A primitive predicate must be listed in
the lexicon of the language in question. Most
primitive predicates are single words, but
some are complex, in particular idiomatic ex-
pressions like dop a brick or be off one’s rocker.
Non-primitive predicates are the product of
instantaneous combination (such as having
once been kidnapped by three witches): their
meaning is derivable from the meanings of the
component primitive elements. A primitive
predicate normally expresses a concept current
in the speech community at hand. One also
says that a predicate assigns a property to the
entity or entities it is applied to. Such an as-
signment is called a proposition. A proposition
can be true or false.

Since we are speaking of an abstract level
of semantic description (sometimes called
“logical” level), we may expect “abstract”
predicates (McCawley 1973: 285–319; Seuren
1996), such as quantifiers, tenses, and logical
operators (e. g. negation, conjunction, dis-
junction). In modern predicate calculus, this
makes perfect sense, as quantifiers are clearly
higher order predicates over (pairs of) sets,
whereas tenses and the logical operators can
be considered predicates over possible situa-
tions. We thus envisage a level of semantic
description where all semantic content is predic-
tate content. A well-defined mapping
system relates semantic descriptions of senten-
ces to their surface representations, specifying,
inter alia the word (or morpheme) class of
each predicate.

2.2. Word classes and propositional
structure

All languages have surface word classes. Verbs
and nouns appear to occur universally. Adjec-
tives, adverbs, prepositions, conjunctions, are
extremely widespread among the languages in
the world. That verbs, nouns and adjectives
are predicates is easy to see: they can all be
used predicatively, i.e. as the main grammatic-
cal predicate of a sentence or clause (with or
without a copula). But they can also be used
in definite noun phrases to help establish re-
ference: the one who sleeps, the man, the good
one. Such NPs are analysed as “the x such that
x (sleeps/is a man/is good)”, so that the pre-
dicative use is restored.
Many adjectives present a special problem in that they only allow for attributive use, i.e. to modify a noun: the late king, the previous day, the alleged culprit, a hard worker, a good teacher, a true pleasure, a nocturnal trip, a monumental sculptor (when they also allow for predicative use, their meaning differs). For such cases, a non-standard analysis is required: “the x such that (x was king and has died) is the day before/is alleged to be the culprit/works hard/teaches well/really is a pleasure/is a trip in the night/makes sculptured monuments”. 

In German, exclusively attributive adjectives in set phrases are often incorporated into the noun: Schmalfilm, Weißwein, Magermilch, Engelschlerer.

A similar, far from trivial, problem is provided by adjectives like first or last, as in The first American landed on the moon in 1968. Obviously, this sentence is not about the “first American”, but about the first American to land on the moon, and it says that he did so in 1968. The semantic specification of these adjectives requires a specification of the property assigned in each case to their NP by the remainder of the sentence or clause, and adds this to the meaning of the adjective.

Prepositions are also predicates, despite their grammatical appearance. For cases like The book is on the table this is not too difficult to see, but it is harder for cases like Coffee grows in Africa. Steinthal (1860: 101) already observed that “logically, one should say The growth of coffee is in Africa”, thereby positing a separate “logical” level of semantic description, where the surface verb grow is not the semantic predicate but the preposition in is. A good test for this thesis is the effect of negation: Coffee does not grow in Africa. Clearly, what is denied here is that it is in Africa that coffee grows, not that coffee grows.

Likewise for adverbs. For manner adverbs we rely again on Steinthal (1855: 199), who states that when we say The patient slept well, “often, what one wants to say is that the patient’s sleep was good”. Again, this is borne out by the negation test: The patient did not sleep well denies the quality of the sleep, not the sleep itself. Other adverbs, less closely associated with the verb and more with the (rest of the) sentence as a whole, show the same features. In She left yesterday the adverb yesterday is a sentential operator, and thus a predicate over the remainder of the sentence: “yesterday [she left]”. Again, of course, the negated version She did not leave yesterday, or “not yesterday [she left]”; does not deny the leaving but only the time of leaving.

Subordinating conjunctions, like because, are likewise predicates at the level of semantic description. A sentence like John left because he was tired is analysed as something like “John’s leaving was caused by his being tired”. Again, the negation test bears this out: John did not leave because he was tired (with not as sentence negation) denies not his leaving but that his leaving was caused by his being tired.

This does not mean that surface word classes are without semantic significance. On the contrary, seen against the background of propositional structure, the different word classes found in the languages of the world appear to have a certain functionality, in that they reflect human cognitive preferences for the use of certain classes of predicates over others for the different purposes of identification of (or reference to) the entities or objects involved on the one hand, and the expression of the properties to be assigned to them on the other. One may assume that in all languages it is more natural to say “Some children were laughing” than “Some laughers were children” (unless the discourse is specifically about laughers).

Nouns or nominal predicates are typically suitable for use in NPs for the purpose of either identification (to refer to the entities or “objects” the propositional predicate is applied to) or classification (to assign an entity to a class, often with a copula verb).

A similar argument can be set up for verbal predicates. These are typically needed more for the characterization of the properties assigned to the objects the proposition is about than for the purpose of reference. They may also help to identify (refer to) objects, as in the man who ran away, but their prime function seems to be predicative, for no other reason than that the properties they express appear less suitable for the purposes of reference.

Adjectival predicates appear to be typically those that are maximally useful both for helping to establish reference (attributive use) and for the purpose of predication (predicative use). In fact, we see that in those languages that do have adjectives there is a trade-off between adjectives and verbs (Dixon 1982: 1–62): some concepts that are expressed adjectivally in one language are verbs in another. (In English as well as other languages one occasionally finds alternations of the type be cross-eyed versus squint, or words like limp, which is both adjective and verb.) Moreover, adjectives in
some languages follow the morphological paradigm of nouns, while in other languages they seek the morphological company of verbs (Wetzer 1996).

Prepositional predicates seem to be the ones that are most useful for three purposes: predicative use (the book is on the table), attributive use (the book on the table), and use as sentential operator (Coffee grows in Africa). The latter use is important, since, at the level of semantic analysis, propositions (or propositional functions) can be placed under higher operators such as tense, negation, operators of place, time, circumstance, or, in the case of propositional functions, quantifiers. Some predicates appear to have the primary function to at as propositional operators, a property that can become manifest in their surface word class.

In this way one may seek to provide arguments for the functionality of the surface manifestations of what we have called the “abstract” predicates of tense, quantification, negation, and the binary propositional operators. We shall refrain from doing so, but we do point out that the perspective just sketched may well be more fruitful for the purpose of defining word classes than the traditional method. If we look at the distribution of semantic predicates over word classes in the languages of the world, in the fashion of Dixon (1982), we may well find that we no longer have to say that nouns “denote substances, man, animal or thing”, or that verbs “denote processes or states”, or that adjectives “denote properties”. Modern linguistic theory has rightly abandoned such definitions, yet it has failed to come up with new general definitions that show both the cognitive and semantic motivation and the grammatical functionality of the distinctions found.

The central question is: what underlies the apparent functionality of nominal predicates for the purpose of referential identification, and of verbal predicates for the purpose of property assignment in predication, and likewise for the other word classes? An answer to this question can only be found in the psychological study of human cognitive processes.

3. Reifications and object-orientedness

A special note is in order about the nature of the entities or “objects” involved in the propositional assignment of properties. Some “ob-

jects”, especially the ones called “physical”, such as dogs, cats or flowers, have the appearance of being in some sense basic: they are thought to “exist” in a very concrete sense. Others, such as circumstances, interests, agreements, actions, bank accounts or average incomes, are recognized as being more abstract, i.e. complex and reducible to more basic elements. What they all have in common, is that they are reifications. A reification is a mental construct whereby a collection of cognitive data, structures and/or processes is lumped together as an “object” that can be handled in further cognitive processing, in particular processing of the propositional kind (whereby properties are assigned to such “objects”).

It has been an age-old confusion to think that the “basic” objects referred to by referring NPs must be actual objects in the real world (the “ontological commitment” of Quine 1960: 120, 233 – 4). Yet physicists tell us that, ultimately, any physical object consists of a complex interplay of atomic and subatomic forces, and that the discreteness of physical objects as perceived by humans is, from a purely physical point of view, a doubtful affair. One is, therefore, inclined to conclude that the “objects” we perceive are in fact all reifications, the result of heavy cognitive processing, probably of a highly functional nature, indispensable for survival. Physical reality is there, and it is crucial for what we perceive; but it is much farther away than we thought.

The discovery of the usefulness of the cognitive device of encapsulating baskets of thought content into “objects” was made implicitly during the many millions of years of animal evolution. It was repeated explicitly in the recent history of designing computer languages, when it became clear, during the 1980s, that it has great functional advantages to make computer languages “object-oriented”. In fact, the computer scientists simply rediscovered the principle of reification for the purpose of computer languages. In these terms we can say that the human mind, and with it, human language, is object-oriented to the hilt. It is a fair guess that it is for that reason that nominal predicates are found in all human languages.

4. Satisfaction conditions

The precise definition of the satisfaction conditions of predicates is far from an easy matter. We shall discuss two aspects, pre-
conditions (4.1) and cognitive dependency (4.2).

4.1. Preconditions and update conditions
It is known that most sentences carry one or more presuppositions. E.g. David is divorced \(\Rightarrow\) “David was married”, or Jack has come back \(\Rightarrow\) “Jack was away” (Seuren 1991). Presuppositions are to be distinguished from assertions. A presupposition is somehow taken for granted in the discourse at hand, while the assertion is presented as new information. The assertion in David is divorced is that David’s presupposed marital state no longer obtains.

It is commonly agreed that most presuppositions derive from the lexical meaning of the main predicate of the sentence (Fillmore 1971). This can be made explicit by making a distinction between two kinds of satisfaction conditions, the preconditions and the update conditions. The predicate be divorced, for example, is semantically describable with the help of the precondition that the referent of the subject term was previously married, and the update condition that (s)he no now longer is.

Most predicates have a precondition of real existence with respect to the objects to be referred to by nominal arguments. For example, the three term predicate sell (John sold the car to Henry) has the precondition that each of the three terms must refer to a really existing entity for the proposition to be true. This is the source of the well-known existential presuppositions. Not all predicates impose such a precondition. Believe in, for example, can be used truthfully when the object term refers to a non-existing entity, as in John believes in Santa Claus.

Predicates over propositional terms often have a precondition requiring the reality of the fact referred to by the propositional term. Such preconditions give rise to the so-called factive presuppositions (Kiparsky & Kiparsky 1971). An example is the predicate have forgotten, as in John has forgotten that today is his birthday, which presupposes that today is, in fact, John’s birthday. Most subordinating conjunctions, such as because or although, are factive with respect to their object-proposition. A sentence like John left although he amused himself presupposes that John amused himself, and asserts that it was in spite of that that he left.

One of the advantages of considering all lexical material as being predicative in nature is precisely that this enables one to locate the origin of presuppositions in the preconditions of the predicates concerned, no matter their surface word class. This makes for greater unity in presupposition theory.

4.2. Cognitive dependency
Attempts at defining satisfaction conditions purely in terms of real world properties of the entities referred to are doomed to fail. This is because lexical meanings often need cognitive information for their precise definition. Without claiming exhaustiveness, we distinguish the following cases.

4.2.1. The possesive complex
By “possessive complex” we mean the variety of grammatical means available for the expression of possession or belonging: genitive or dative case, the prepositions of, to or with, the verb have, etc. In all these cases the precise nature of the relation of possession or belonging involves world knowledge. The semantic description of these predicates must therefore contain a symbol that refers to available world knowledge. Consider the following pair:

(1a) Each room in the hotel has a shower
(1b) Each student in the faculty has a supervisor

Clearly, for (1a) to be true a one-one mapping between rooms and showers is required, whereas for (1b) to be true a one-many mapping from supervisors to students is sufficient. This information is essential for a proper understanding of the sentences in question. It is not, however, to be retrieved from the objects spoken about, but from world (or encyclopedic) knowledge; if one doesn’t know the difference between the satisfaction conditions of has in (1a) and (1b), one must learn more about hotels and faculties.

4.2.2. Viewpoint phenomena
Some predicates require a specification of viewpoint. Consider the pair:

(2a) John looked around. The box was to his left
(2b) I looked around. The box was to John’s left

In (2a), the viewpoint is taken by John, and the box must be to his left as he sees it. In (2b), this is not necessary; the box must be to John’s left as I (speaker) see it, while for John it may be anywhere around him (for further comment and references, see Seuren 1998: 16). That predicates like left, right, in front of, be-
hind etc., and also pairs of the type come and go, are sensitive to viewpoint is no doubt due to the fact that they involve ego-related localizations. (One thinks of the quasi-problem of why mirrors invert left and right, but not up and down.) Since cognitive viewpoint phenomena can affect truth or falsity, they must be recognized as a factor in semantic description.

4.2.3 Vagueness and evaluation

It has often been observed that many predicates have vague semantic boundaries. This is true, first, of the so-called gradable adjectives, which allow for comparisons of degree (e.g. old, good, long, but not closed, full, dead). To say of a man that he is old is sometimes clearly true and sometimes clearly false. But there is also an intermediate “grey” area where it is neither clearly true nor clearly false. An inherent norm of “oldness” is applied, which depends in part on subjective, cognitive evaluation. How the norm is selected is still largely unknown. It is unclear, for example, what norm is to be applied in a case like Apes are intelligent. Are they meant to be intelligent with regard to humans, or compared with other animals? There is a large amount of literature dealing with gradable adjectives, and many issues have so far remained unresolved. But it is clear, across the board, that no solution will be found unless cognitive factors are fully integrated into the semantics of gradable adjectives.

A further source of vagueness lies in a semantic component of evaluation. As was already pointed out by the Greek Sophists, the truth of a sentence like There is a pleasant breeze depends primarily on what humans perceive as “pleasant”, under varying conditions, and only in a secondary sense on the physical properties of the object so predicated. This point has great philosophical importance, as philosophers argue about the question of whether predicates like good and just (the central concepts in ethics), and beautiful (central in aesthetics), are to be defined in terms of world properties alone, or in terms that co-involve personal evaluation. As we have just seen, this question applies likewise to the predicate true.

4.2.4 Prototypicality and functionality

One further source of vagueness lies in the fact that predicate meanings (satisfaction conditions) often centre around prototypical “ideals” (Rosch 1975). Some objects are closer to the intended prototype than others. A sparrow, for example, is closer to the prototype of “bird” than an ostrich. The notion of prototypicality plays a role in lexical semantics, in that preconditions often select prototypical circumstances. The German predicate kahl, for example, has the preconditions that the subject term referent really exists, that it is prototypically a human being or his/her head, prototypically covered with hair on the top of the head. Yet it may also, nonprototypically, be another kind of object, normally covered with other growth (e.g. feathers) or with decorative artifacts. The update condition is simply that the growth or decoration which is normally there, is not there. This allows for phrases like der kahle Kopf, der kahle Mann, der kahle Baum, der kahle Vogel, die Kahle Landschaft, die kahle Wand. Note that English has two predicates to cover this field: bald and bare. Yet, when asked what the English equivalent is of German kahl, most people will reply bald, not bare. This is because of the prototype of kahl, which centres around hair on the human head, so that the more marginal cases slide out of focus.

Another similar, but little understood, aspect of lexical meaning is functionality, especially in the case of artifacts. A table, for example, is any object that can be used as, or is intended to serve as, a table, no matter how many legs or what shape or size it has. The predicate table, therefore, is to be defined in terms of the intended function of any object so called.

This aspect of functionality may be buried deeply below the surface, so to speak. The German word Schwelle, for example, translates into English as threshold. Yet there appears to be a deep difference between the two, which comes to the surface when we look at the compound words Verkehrsschwelle or Bodenschwelle. In English, these are called speed bump or sleeping policeman, but it is unthinkable that the word threshold could be used for these objects. This is probably because English threshold implies a transition from one state to another (from outside to inside, for example), whereas Schwelle carries no such implication but simply indicates (as its etymology suggests) a longitudinal heightening of the floor surface.
215. The role of lexical data in pragmatics

1. The issue

The issue which this article is concerned with is the crucial term pragmatics. As can be seen in the overview given by Levinson (1983), there are different notions of pragmatics in the literature, none of them generally accepted. This article therefore cannot be restricted to agreed territory. To some extent, it has to argue as well and to make decisions. The question of the notion of pragmatics cannot be left open nor can a series of different pragmatics be dealt with. Avoiding artificial problems of definition, the term pragmatics is understood as a linguistic sub-discipline that deals with language in use.

The structure of chapter XXXVII might suggest a notion of pragmatics as a separate level which is added to syntax and semantics. Such a view is based on the structural model of separate, autonomous levels and continues to deal with language as an enlarged sign system. Language in use however constitutes a new notion of language, a new subject matter that requires a new pragmatic methodology. It can be taken as largely accepted that language is used in social interaction to negotiate communicative purposes by communicative means.

The change in the subject matter from language as sign system to language use as social interaction implies a change in the lexical issue, too. The central question is no longer: What is the meaning of the single word? but: What is the role of the word in language use? (Weigand 1996). Words are used in syntactic phrases, and phrases are part of the utterance.

Lexical data play their role in language use on the utterance side as well as on the functional side. Their role on the utterance side depends on the question of what constitutes the lexical unit (chap. 2), their role on the func-