On the contribution of lexical meaning to utterance interpretation*

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Abstract

In this paper I shall be concerned with a set of issues which will allow me to approach the interface between linguistics, conceived as a theory of linguistic knowledge (Chomsky 1992, 1995), and pragmatics, conceived as a theory of utterance interpretation (Sperber - Wilson 1986), and in particular to examine the contribution of linguistic meaning to utterance interpretation. The analysis I propose involving the content of some lexical items will allow me to put forward the hypothesis that any specification for meaning representation which is contained within a lexical entry must be understood as a type of constraint or instruction on the process of building up the logical structure or propositional form corresponding to a given utterance (Kempson 1992).

Key words: Linguistic-Pragmatic Interface, Lexicon, Theory of Language.

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1. The lexicon within a theory of language

According to the generative approach to the study of language, such as the one developed by Chomsky (1992, 1995), a language L is an instantiation of the language faculty, and an *internalized* language is a generative procedure that generates structural descriptions.

A language consists of two components: a lexicon and a computational system. The lexicon specifies the minimal lexical units that are incorporated into the computational system, together with their idiosyncratic properties (i.e., phonological, morphological, syntactic, and semantic features). The computational system uses these lexical items to generate derivations and structural descriptions. Each structural description constitutes a complex of semantic, phonetic, and syntactic properties, which are the expressions of a language.

This means that the derivation of a particular linguistic expression involves a choice of items from the lexicon and a computation that generates the pair of interface representations: the Phonetic Form and the Logical Form (which in generative grammar are referred to by means of the terms PF and LF). A language L must provide instructions to be interpreted at these two interface levels, in the sense that each structural description contains a set of instructions for each of the performance systems in which language is embedded (mainly the Articulatory-Perceptual and the Conceptual-Intentional).

Accordingly, it is assumed that the only levels of linguistic representation are the interface levels, and all conditions to be specified in a theory of language express properties of these levels, properties related to requirements of the interface.

It should also be noted that according to this design, the lexicon must specify the properties of minimal lexical items that enter into the computational system. If a structural description is a set of instructions for articulating, interpreting, referring, and so on in an appropriate way, then it must also be the case that the components of these structural descriptions introduce a set of instructions for building an appropriate articulation, interpretation, and reference assignment for a linguistic expression; that is, they are the building blocks of a level of representation which interfaces with the Conceptual-Intentional system. An item in the lexicon is nothing other than a set of lexical features, a set of instructions to be interpreted at the above mentioned interface levels.[1]

From a different theoretical approach, known as the Labelled Deductive System (LDS) perspective (see Kempson 1992, in press; Gabbay 1992; Gabbay

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1.   Also central to this view is the assumption that universal grammar is concerned with the invariant principles that characterize the initial state of knowledge of language and the range of permissible variation. It is assumed that beyond variation in PF options and lexical arbitrariness, variation is limited to nonsubstantive parts of the lexicon (such as properties of grammatical formatives: inflection) and general properties of lexical items (e.g., the head parameter). Accordingly, following a minimalist program for linguistic theory (see Chomsky 1992), there is only one computational system and one lexicon, apart from this limited kind of variety.

- Kempson 1992a, 1992b), it is assumed that both a lexicon and a computational procedure are crucial for building logical structures in natural deduction systems. Utterance interpretation —according to Kempson (in press:10)— can be defined «as a process of natural deduction from some initiating set of premises to some conclusion α:t, α being the proposition expressed, with some of the words presented as premises to that conclusion, others determining how the conclusion is reached». It is important to bear in mind that Gabbay and Kempson postulate one single computational system (or parsing procedure) which corresponds to the general reasoning system; the building of logical structures is not characterized as a grammar-internal process but as a process of central cognitive reasoning, for they abandon the concept of the language faculty as a body of knowledge independent of the faculty of reasoning.[2]

Following a LDS approach it is assumed that the way in which our languages are structured directly reflects the way we reason and, therefore, that universal grammar, as a separate encapsulated language faculty, is replaced by a rich syntactic theory of mind. The encapsulation of the language faculty, as an independent input to processes of general reasoning, is reduced to a body of information encoded in the lexicon, information which drives the inferential task of building the required structured databases.

Stored in the lexicon for each lexical item is a specification of its contribution to utterance interpretation. These specifications encode restrictions whereby inference structures are not merely deduced, but progressively built. These specifications, therefore, lie at the heart of the procedural perspective to natural language interpretation.

In a LDS approach, language is conceived as a goal-directed inference system. Therefore, linguistic constructions and lexical units must be thought of as instructions for this inferential process. Following a natural deduction system, utterance interpretation is characterized as an inferential process of syntactically building a proof structure, and the result is a model of natural language in which a single concept of structure emerges: that of database construction, on which inference is dynamically defined.[3]

2. The model of reasoning developed by Gabbay (1990), and assumed in later work in collaboration with R. Kempson (Gabbay - Kempson 1992a), has the following properties:
   (i)   It defines processes of deduction. It involves rules and additional choices to be made during the course of the proof.
   (ii) It is procedural, reflecting the way information unfolds through a reasoning task.
   (iii) It licenses the injection of extra choices to be made on-line. It embeds representations of premises (formulae) and representations of additional control features as constraints on the proof process (through the labels).
   (iv) It permits the articulation of additional constraints over and above the steps of deduction themselves.
3. Notice that a shift is proposed from analysing natural-language structure statically (i.e., a content describable in terms of some suitable logic for which familiar concepts of inference are available) to approaching natural-language interpretation dynamically (i.e., from a procedural perspective).

Following this perspective, the meaning of a linguistic expression is defined in terms of the procedures required to build an inference structure; that is, it is defined in terms of the contribution to the dynamics of how the information flow is built up.

In summary, according to a proof-theoretic perspective, lexical items contain specifications which constrain the building of a proof-structure from which the more orthodox concept of truth-content may be derived. The input information, characterized as the lexicon, is necessary for the deduction process: meanings assigned to minimal lexical items induce the building of discrete structures.

Between these two different approaches (the minimalist program and LDS) there are still some basic assumptions in common.

1. Natural language provides a set of procedures and principles for sentence construction. A language is a set of procedures encoded in a lexicon. The lexicon no longer stipulates interpretations for lexical items, rather it stipulates instructions for sentence meaning and utterance interpretation. Syntax is a computational system; it is the set of principles which characterizes the structural properties of linguistic expressions and dictates structural constraints on assignable interpretations.
2. Pragmatics provides an explanation of how a hearer takes a given sequence of words as input and uses it to recover further information about what is said and what is communicated. It provides a map of linguistic objects (i.e., syntactic structures) and non-linguistic entities (i.e., conceptual structures or propositional forms), and a relation between conceptual structures manifested within the central cognitive system. Utterance interpretation should be defined as a process of natural deduction from some initiating set of premises to some conclusion. It relies on general reasoning principles which manipulate the incoming linguistic information in the reasoning task of establishing a structured representation as the interpretation of a given string.

2. The content of lexical items

Having addressed the basic assumptions of some leading approaches to the study of language, I shall now consider the linguistic meaning of lexical items and the type of lexical items that may be assigned to different types of information, decoded and inferred, that an utterance can convey (Wilson - Sperber 1993).

A. Lexical items whose logical content contributes to the proposition expressed by an utterance. Most lexical items (including nouns, verbs, adjectives, adverbials, and prepositions) of natural languages encode conceptual information which contributes explicitly to the proposition communicated by an utterance (i.e., its truth-conditional content, what is said), technically referred to as the explicature of the utterance (Sperber - Wilson 1986, Carston 1988).

(1)   Iceland has a wonderful countryside

In (1) only the lexical meanings of *has*, *wonderful* and *countryside* contribute conceptually to the proposition expressed by this utterance. The proper noun does not have any logical content, and the indefinite does not introduce conceptual information.

B. Lexical items whose logical content should be defined in terms of conceptual representations which do not contribute to the truth-conditions of the utterances in which they occur, but which contribute to higher-level descriptions (e.g., a speech-act description, a propositional attitude description, etc.). This class of lexical items seems to include sentence adverbials pragmatically oriented towards the speaker/hearer, since these illocutionary adverbials are said to encode concepts which are constituents not of the proposition expressed but of higher-level explicatures.

(2)   Confidentially, Mary is unhappy with John

Notice that in (2) the adverbial *confidentially* does not provide a conceptual description that modifies any constituent of the structural description it precedes, neither does it express an attitude of *Mary* or *John*; rather, the logical content of this adverbial expresses the attitude of the speaker when (s) he communicates a specific proposition to the hearer.

C. Lexical items which contribute to implicatures.[4] According to Grice (1975, 1989), discourse connectives words, which are treated as carrying conventional implicatures, fall into this class.

(3)   There is no light. But John is still in his office

The example in (3) illustrates the fact that certain lexical items, such as *but*, do not contribute to the meaning of any of the two propositions expressed by the corresponding utterance. However, the utterance in (3) expresses an information of contrast, which is not truth-conditional, but which is inferable from the meaning of *but*.

D. Lexical items which constrain the proposition expressed. This category includes those items which presumably encode (non-conceptual) procedural information, and so restrict the truth-conditional content of the prop-

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4. Grice (1975) postulates that, in the event of an apparent violation of the co-operative principle and the maxims of conversation, hearers are expected to make additional assumptions and conclusions, needed in order to dispose of the violation. These implicated premises and conclusions are called *implicatures*.

osition conveyed. The analysis of pronouns provide good evidence for the existence of constraints on explicatures (Kempson 1987, 1990, 1992).

(4) a. L'odia
        CL hates
        '(S)he hates him/her'

    b. La Maria no saluda en Joan. De fet, l'odia
        Maria not greets Joan. In fact CL hates
        'Maria doesn't greet John. In fact, she hates him'

    c. Cadascun dels ajudants creu que un becari l'odia
        each one of the assistants thinks that a scholarship student him hates
        'Each one of the assistants thinks that a scholarship student hates him'

Notice that in (4a) the Catalan clitic pronouns *el/la* refer to some entity which is made explicit neither within the linguistic expression, nor in the linguistic discourse; their reference will be assigned by means of an access to contextual information. In (4b) the clitic refers to Joan in virtue of co-reference with the linguistic expression *en Joan* which appears in the discourse. In (4c) the clitic does not refer to a fixed non-linguistic entity: a particular assistant, but to any assistant that might be considered in the discourse. This is because in (4c) *el* is bound to a quantifier antecedent which appears as subject of the main clause.

As argued by Kempson (1987) with regard to English data, the various readings *el/la* may have (among others, the referential, the coreferential, and the bound-variable reading, illustrated in (4)) should not be attributed to an across-the-board phenomenon of ambiguity, but to the sort of under-specified linguistic information these lexical items have, which constrains the proposition expressed.

E. Lexical items which constrain the higher-level explicatures of an utterance, that is, which restrict the illocutionary force and propositional attitude that should be inferred from a particular utterance. This class is intended to include lexical items such as discourse particles, which are assumed to convey illocutionary and attitudinal functions (e.g., French *ti*, Sissala *re*, English *eh*, Catalan *oi*). The argument for postulating this category proceeds as follows: illocutionary particles do not encode any concept, rather they constrain the sort of propositional attitude of either the speaker or the hearer towards the proposition expressed.

(5) Oi que vindràs?
     PART that come
     'You are going to come, aren't you?'

This example can illustrate the fact that a lexical item such as *oi* in Catalan conveys information which is intended to restrict nothing other than the assent of the hearer on the speaker's intended proposition.

F. Lexical items which constrain the implicatures inferred from an utterance. They are believed to be a set of lexical items which neither constrain the explicit content, nor the truth-conditions of the proposition uttered, nor the attitude of the speaker/hearer towards what is being said/requested in the utterance. Following Blakemore (1987), connective words in discourse have been claimed to introduce semantic constraints on relevance, which means that they are said to introduce different sorts of restrictions on the logical relationship that must take place between the utterance containing the connective word and some specific —to be chosen— contextual environment.

Whereas for Grice (see point C above), the conventional implicatures of an utterance are arbitrarily stipulated and encode some conceptual information, for Blakemore connective words encode some procedural information.

So far, we have considered the major types of lexical items that may be found in a natural language, with regard to the different types of information conveyed by an utterance (as postulated by Wilson - Sperber 1993).

The next issue I shall deal with will be to show that conceptual specifications of lexical items are a subset of the semantic instructions that might impose either at the level of representation which is supposed to be the interface between language and the Conceptual-Intentional system (in the minimalist program), or at the level of logical structure (in LDS).

3. Linguistic instructions

The claim just made is based on the assumption that lexical items are to be conceived as sets of instructions. Among the set of constraints on LF or database building formation (see section 1), various types of specifications should be distinguished: some of them may provide conceptual information, others provide logical information (e.g., logical type category, that is, LF-selection specifications, and logical constraints on the connection of premises, illustrated below), and still others provide syntactic information (e.g., restrictions on the scope effects that certain adjuncts always have over other adjuncts; for example, modal adverbs and certain temporal adverbs and temporal quantifiers with regard to the negative operator). Let us illustrate this claim.

Any lexical item of class A in section 2 has a basic semantic contribution to utterance interpretation which corresponds to one or several concepts, and this conceptual expression is a set of attributes predicated of some individual(s). In addition to a conceptual expression, the semantic contribution of lexical items such as *have, wonderful,* and *countryside* should specify its logical type.

The logical type is due to specify the semantic category corresponding to any specific syntactic category: an individual denoting expression e, a truth bearing expression t, or any combinatorial function on these. The logical type category is equivalent to its LF-selection, because it refers to a specification of

the argument structure that lexical items such as verbs, adjectives and nouns may induce.

Thus, for example, a noun such as *countryside* should be conceived as a lexical item which involves a specific conceptual description (the predicate *countryside*) plus the logical instructions e—>t, which means that the contribution of the concept *countryside* to the process of interpretation is a one place predicate, which means that it is function from individuals (e.g., *Iceland*) to truth-values (e.g., *countryside (Iceland)*).

The logical constraints on the connection of premises refer to the logical information that lexical items such as relative markers encode, since they provide a means of constructing linked pieces of information.

(6)   They will travel from Akureyri to Reykjavík, where they will take the plane

In (6) an important component of the lexical meaning corresponding to the relative word *where* is a specification of the logical device according to which the hearer must understand that the antecedent of the pronoun is the town denoted by *Reykjavík*, not the one denoted by *Akureyri*. Thus, the contribution of the relative pronoun to utterance interpretation consists in specifying the connection that holds between the two propositions being linked, taken as premises.

Finally, in order to illustrate the claim that among the set of constraints on LF or database building formation sometimes some syntactic specifications should also be specified, let us consider the following examples.

(7) a.   Naturalment, no farem tard
         naturally, not make -1ppl late
         'Naturally, we'll not be late'

    b.   Ja no farem tard
         any more not make -1ppl late
         'We'll not be late any more'

Modal adverbs (i.e., *naturalment*), as well as certain temporal adverbs (e.g., *ja* 'already, not any more'), always have wide scope over other operators and quantifiers appearing in the syntactic structure (e.g., the negative operator). Therefore, the building of the meaning configurations corresponding to these sentences are actually determined by the syntactic specifications stipulated in the lexical entries corresponding to the adverbs.

Thus, it is neither the case that the semantic analysis of certain lexical entries is exhausted by its associated conceptual description, nor that all lexical entries contain conceptual information. Conceptual encoding is possible, but it is neither a necessary nor a sufficient semantic characterization of lexical items.

In the following section I would like to point out one further issue on the

contribution of lexical meaning to utterance interpretation, on the assumption that all lexical items somehow underdetermine the logical structure which corresponds to the linguistic expression in which they occur. The goal of this discussion is to make explicit that the different types of instructions (conceptual, logical and syntactic) encoded by lexical items, which must be implemented following some general reasoning task, are not mutually exclusive, in the sense that one single lexical item can encode both conceptual contributions to the proposition expressed and logical constraints on the proposition expressed.

4. Catalan no... pas

A good example which can be considered in order to illustrate the claim just made is provided by Catalan negation.

Let us compare the following examples.

(8) a. La Maria no vindrà
        Maria not come
        'Maria is not going to come'

   b. La Maria no vindrà pas
        Maria not come not
        'Maria is actually not going to come'[5]

Like *no*, *no-pas* is an adjunct constituent which is involved in a syntactic relation of modification within the syntactic structure in which it occurs. In accordance with this grammatical contribution, the negative markers —being adjunct adverbials— are generated somewhere within the sentential domain, and it is precisely the structural positions these adverbs occupy at LF that determine their logical role as propositional modifiers —that is, as propositional scope operators.

Furthermore, *no... pas* (Espinal 1993) can be said to constrain the comprehension process by instructing the hearer that (s)he has to take the proposition in which *no... pas* appears as a premise, and enrich this proposition in such a way that some cognitive effects may be obtained. These may be either the reinforcement or cancellation of the proposition; certain inferences derived from what the speaker/hearer considers to be a desirable thought (in interrogative contexts); or a prohibition reinforcement or threat (in imperative contexts).

Since (8b) is a declarative sentence, its interpretation corresponds to either a cancellation or a reinforcement of a contextually specified proposition. What is interesting is that *no... pas* is a lexical item whose logical instructions may be said to encode a constraint on implicatures, but whose logical content (i.e., the negative logical operator) contributes simultaneously to the proposition expressed.

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5. «Not» against what you appear to think, «not» against what somebody might suppose, «not» confirming what someone might believe.

5. Summary and concluding remarks

In this paper I began with some of the basic questions within a theory of language: what is the lexicon, and what is a lexical item. In section 2, I presented an overview of the various types of lexical items that may be assigned to different types of information, decoded and inferred, conveyed by an utterance. Sections 3 and 4 are devoted to the notion of linguistic instructions, and to illustrate the claim that one single lexical item can encode different types of semantic information.

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