ON THE NATURE AND SCOPE OF LANGUAGE CAPACITY

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This paper attempts to explore the nature and scope of the concept of language capacity from the vantage point of the interplay between schema theory and a pragmatic theory of meaning. In it the view is developed throughout that the distinction between competence and capacity may be of interest to theoreticians working from either the functionalist or the formalist point of view, since the distinction can be translated in cognitive terms into a schema-procedure paradigm.

0. Introduction

Language is commonly taken to be both a mental and a societal phenomenon, even though most attempts at studying it have centred upon only one of these two facets. In this paper we will try to put both aspects in due perspective as belonging to a wider epistemological theory. According to this comprehensive view, linguistic theory can be considered part, at the same time, of a theory of knowledge and of a theory of communication, but it is not coextensive with either of them. It is from this point of view that the substance of what I want to say will be best understood.

1. Knowledge domains

Discussion on the number and characteristics of the different knowledge domains which play a role in language comprehension has become an essential ingredient in cognitive theories of language. It underlies studies in Artificial Intelligence (Goldstein & Papert, 1977; Winograd, 1980; Winograd & Flores, 1986) and psychological theories on comprehension (Graesser, 1981; Greene, 1986).

In a psychology-oriented study on prose comprehension Graesser (1981) puts forward —tentatively— six basic knowledge domains: **linguistic** (phonemic, lexical, syntactic, semantic and pragmatic); **rhetorical** (which would include types of prose, analysis of rhetorical conventions such as *story grammars*, prose genres, etc.); **causal conceptualizations** (which explain how a language user may be capable of establishing links where the linguistic form is uninformative); **intentional conceptualizations** (which account for intentional action sequences of goals and plans, as well as the speech acts performed by different characters); **spatial knowledge** (that is,

scenarios constructed by the comprehender for the actions, events and states in a narrative); **knowledge about roles, personalities and objects** (amounting to knowledge about certain traits in the characters and about physical properties of things).

In the field of Artificial Intelligence, most of the work on language comprehension has been done in the third of these three knowledge domains:

1. **linguistic structure** (phonemes, words, phrases, sentences, etc.)
2. **semantic structure** (truth-value of utterances)
3. **cognitive processes** (how a person generates or interprets utterances)

Winograd (1980) suggests a move from these three fields on to a fourth pragmatic domain related to factors of human action and interaction.

It is interesting to note that in both approaches the need is felt to explore language comprehension from the point of view of social relations. It is also worthy of note the increasing recourse of cognitive theories to issues (such as the above reference to rhetoric and speech acts) which have been typically dealt with by semantic and/or pragmatic models. But the point of view is still different. The cognitivist studies the nature of knowledge systems, and of thought, learning and memory processes, as well as the nature of perception and in general of any intellectual process. The work of semanticists and pragmaticists, however, seems to be somewhat restricted to the nature of linguistic meaning and communication, whether reference is made (as is the case with pragmatics) or not (with semantics) to the language user.

It will be observed that knowledge domains are not unrelated discrete entities. Rather, as it will be shown in the next section, they can be arranged and defined against the background of two general concepts called *competence* and *capacity*.

2. Competence and capacity

The term *linguistic competence* is usually taken to refer to the knowledge a language user has of the rules of a language. As it is well known, this understanding of the term originated with Chomsky in the 1960s and has been widely discussed by linguists and psychologists since then. In the 1970s the original concept was extended to make it include non-grammatical rules in what is known as *communicative competence* (see Hymes, 1979), that is, knowledge of conversational norms, speech acts and considerations of situational appropriateness. It is a concept which takes account of language use and communicative goals.

It can be seen that both types of competence can be described as systems of norms or rules. But language use cannot be reduced to just such

systems. It has been pointed out that the language user exploits other communicative resources as well. There are principled ways to make full communicative use of competence rules in discourse. These principles are part and parcel of pragmatic accounts and make up what Widdowson (1984) has termed *language capacity*. The main difference between rules and principles is that rules either apply or not. Principles are not constitutive but regulative and involve preferences in use[1].

It has been customary in linguistics to systematize linguistic descriptions by means of rules, even outside the scope of grammar, as is the case with speech act theories. Let us examine, in this connection, Searle's proposal of the (mostly regulative) set of rules for promising (Searle 1972: 153):

> **Propositional content rule**: P is to be uttered only in the context of a sentence (or larger stretch of discourse) the utterance of which predicates some future act A of the speaker S.
>
> **Preparatory rules**: 1. P is to be uttered only if the hearer H would prefer S's doing A to his not doing A, and S believes H would prefer S's doing A to his not doing A.
>
>   2. P is to be uttered only if it is not obvious to both S and H that S will do A in the normal course of events.
>
> **Sincerity rule**: P is to be uttered only if S intends to do A.
>
> **Essential rule**: The utterance of P counts as the undertaking of an obligation to do A.

Notice that if we break the sincerity rule, for example, and make a promise we do not intend to keep, the result will be the enforcing of another —here unstated— rule of the same sort. S may be taken to be lying but no mistake will be involved.

Let us now take Labov's *rule of requests* (Labov 1972: 302):

> If A requests B to perform an action X at a time T, A's utterance will be heard as a valid command only if the following pre-conditions hold: B believes that A believes (= it is an AB-event that)
>
> 1. X should be done for a purpose Y.
> 2. B has the ability to do X.
> 3. B has the obligation to do X.
> 4. A has the right to tell B to do X.

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[1] For example, in English the stress pattern accounting for the pairs *indicate/indication*, *alternate/alternation*, *contemplate/contemplation* can be described by a phonological rule. A breach of that rule would result in error. But if I violate a principle of language use the result will be different. For example, there is a pragmatic principle which states that people tend to be polite when they speak. The utterance *I'm pleased to hear that your mother died* represents (in a certain context) an obvious breach of that principle but from the point of view of competence it is perfectly correct. From a pragmatic point of view, such an utterance may be intended to imply irony or scorn.

Labov and Fanshel (1977: 78) add to these the precondition that there is a need for the request, that is, that B would not do X in the absence of the request. This rule would explain why the utterance *Close the window* may be interpreted as a command if told by the lord to the butler (in typical conditions) but not by the butler to the lord (because of preconditions 3 and 4)[2]. We had better regard rules of this kind as sets of procedural principles enforceable by the language user in the discourse process. From the communicative point of view, a breach of any of the principles will result in any of a number of different illocutionary values. From a mentalistic approach, they entail a different sort of mental activity from that of communicative competence. They constitute inference processes within the scope of language capacity. Thus, in the above example, if we assume A wants the window to be closed, he will normally expect the performance of the requested action. But if B's reply challenges A's request (eg. *Why should I?*) A will have to infer that B feels there is no need or obligation on his part.

One further point is necessary. If we examine the preconditions of Labov's *rule of requests* we will be able to see that the first precondition entails a different type of knowledge from the others. The need for the action (and for the request) arises out of a particular situation and is temporary. It is based on conditions here and now. On the other hand, the knowledge about a person's ability to do something, his obligations and rights is part of our common world knowledge.

It has been suggested that world knowledge may be of two types, ideational and interpersonal (see Widdowson, 1984). The first type is concerned with the description of objects (in a wide sense) and their properties. Knowledge about ability belongs to this type. The second type is knowledge of the way language serves to perform social actions, thus including rights and obligations.

Since world knowledge, of whatever kind, is not unstructured, many researchers in cognition have used the term *schemata* to refer to this fact. We shall deal with this and other related terms later on. But here I would like to point out two important things about schemata: first, they do not belong to the domain of capacity but rather to that of competence, though language capacity cannot function independently of world knowledge; second, the notion of schemata should be fairly attractive to both the functionalist and the formalist, since it is understood as structured world knowledge (ie. a mental representation) in preparedness for use (ie. with a communicative purpose).

We can illustrate the relationship between schematic and procedural knowledge still further with reference to Grice's definition of *implicature* (see Grice, 1975, 1978). In principle, this definition might seem to be ex-

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[2] It must be borne in mind that any of the preconditions may be challenged (in this respect, see Widdowson's analysis in Widdowson 1979, and 1984: 110).

clusively linked to a theory of communication (just as it is the case with his theory of *non natural meaning* or *meaning nn*; see Grice,1971). But the notion of implicature is dependent on the concept of *mutual knowledge* (Levinson, 1983). The definition may be stated as follows (based on Levinson 1983: 113):

From S's point of view:
S is saying that *p* conversationally implicates *q* if:

(i)   S is presumed to be observing the maxims, or at least (in the case of floutings) the co-operative principle
(ii) it is supposed that S thinks that *q*
(iii) S thinks that both S and the addressee H mutually know that H can work out that, to preserve the assumption in (i), *q* is in fact required.

From H's point of view, H must know:

(i)   the conventional content of the sentence (P) uttered
(ii) the Co-operative principle and its maxims
(iii) the context of P
(iv) certain bits of background information (e.g. P is blatantly false)
(v)   that (i)-(v) are mutual knowledge shared by speaker and addressee

All these assumptions and background knowledge can be translated into procedural rules of the same sort as Labov's in actual language use. One good example is provided by Leech (1983:85). The utterance:

a) Jill ate *some* of the biscuits

may lead us to conclude the falsity of:

b) Jill ate *all* the biscuits

However this is not a strictly logical conclusion (it can be cancelled by adding contradictory information: *Jill ate some of the biscuits cin fact she ate all of them*). This is due to the following implicature:

(a) *s* has uttered a weaker proposition *Q* where *s* could just as easily and relevantly have uttered a stronger proposition *P*.
(b) By the Maxim of Quantity-Quality, this, in the absence of contrary information means that the evidence *s* has does not justify the assertion of *P*, but does justify the assertion of *Q*.
(c) This leads to the implicature that *s* believes *P* to be false, *ie.*: *s* believes that *not -P*.

These three steps are inferential in nature and could be understood as a set of procedures activated by the language user in order to decide on the value of «some» (either interpreted as the existencial quantifier $\exists$ or as the universal quantifier $\notin$). Of course, the inferential process will not normally take place independently of a context, whether it is situational or schematic (that is, created in the mind of the speaker). *Jill* must have a referent with a

number of attributes. In the present case, it is possible that *Jill* in fact did eat all the biscuits, but the explicit use of the universal quantifier ¢ must have been felt as too strong by the speaker. If this is so, S is purposely violating the maxims of Quantity and Quality, perhaps in order to enforce a maxim from the *Politeness Principle* (proposed by Leech, 1983) called the *approbation maxim* («minimize dispraise of other»)[3]. To sum up, the procedural system followed by H to decide between both quantifiers might take this form:

1. Search for all relevant schematic and situational information (including previous discourse and knowledge about S).
2. Assume that S is being informative and truthful.
3. If S's assertion A agrees with the information and conditions described in 1 and 2 , interpret «some» as ∃. If that is not the case:
4. Assume assertion A to fulfil the *approbation maxim* of the *Politeness Principle* (or in fact, any other maxim belonging to an interpersonal rhetoric).
5. If interpreting «some» as ¢ enforces any of those maxims and this agrees with 1 and 2, then interpret «some» as ¢.

From the foregoing discussion it is evident that a study of *language capacity* should at least include the following six claims:

1. It is a knowledge domain with communicative relevance which is separable from traditional *competence*.
2. It is not rule-governed but rather principle-governed and therefore procedural in nature.
3. It can only work in association with the activation of our structured knowledge of the world (or *schemata*).
4. It works on an inferential basis.
5. It enables the language user to make full use of all competence resources in the discourse process.
6. As a result, it has a strong bearing on the acquisition and fashioning of competence.

This last claim is of great consequence. It accounts for the fact that a proficient language user may be able not only to speak correctly by abiding by competence rules, but also to do violence to them for the sake of communicative effectiveness —as it is evidenced by the language of poetry and by jokes.

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[3] Of this maxim, Leech quotes Grice's well-known example of an uninformative reference given to a student who applies for a philosophy job:

Dear Sir, Mr. X's command of English is excellent, and his attendance at tutorials has been regular. Yours .... (Grice, 1975).

3. The relevance of the schema/procedure/situation paradigm

The procedural systems studied by pragmatics can be built into cognitive accounts of knowledge domains. And in general the whole discourse process can be accounted for by means of the overall paradigm *schema/procedure/situation*, since in it the relationship among different domains is made explicit.

Schemata are part of the general knowledge domain called competence. As we stated before, schemata may be of two types, ideational and interpersonal. In fact this is Widdowson's suggestion (see Widdowson 1983, 1984) which has obviously been inspired by Halliday's division of the functions of language (Halliday 1973). Then Widdowson goes on to suggest that ideational schemata correspond to the idea of *frames* in Misnky (1975) and van Dijk (1977), or to Winograd's *schemas* (Winograd, 1977). Interpersonal schemata would be similar to what Schank and Abelson (1977) call *plans* and *scripts*. This correspondence is very appealing since functionalism and formalism are linked to some extent, but some points have to be made before we take it for granted too readily:

1. A *frame* in its original formulation is taken to be a conceptual structure (in semantic memory) which represents part of our world knowledge and is organized for the purpose of interpretation. A *schema* is defined as an economical structure for storing memories of objects and events. On the other hand, an ideational schema, if it is to mirror Halliday's ideational function, should be understood rather differently. It should make reference (at least) to processes, participants and circumstances. While the latter two can be considered part of a frame, processes (which include actions) are more closely related to *scripts* (predictable situational sequences) and *plans* (sequences of actions directed to a goal), which would then represent ideational knowledge.

2. The interpersonal function of language seems to be procedural rather than schematic. We use language to establish and maintain social relations, to influence people's behaviour (speech acts) and to express personal feelings and opinions (modality). This area of knowledge is taken account of in Leech's study of the interpersonal rhetoric (politeness, irony, etc.), and it is evidently related to the pragmatic scales of *cost-benefit*, *optionality*, and *indirectness* (see Leech, 1983). On the other hand, Schank and Abelson's *plans* and *scripts* would largely be ideational, contrary to Widdowson's assumption.

3. Widdowson intentionally omits any reference to a textual function and to the possibility of postulating the existence of textual schemata. This is probably due to the fact that Widdowson considers the textual function as an aspect of a wider *communicative function* and not as a function in its own right:
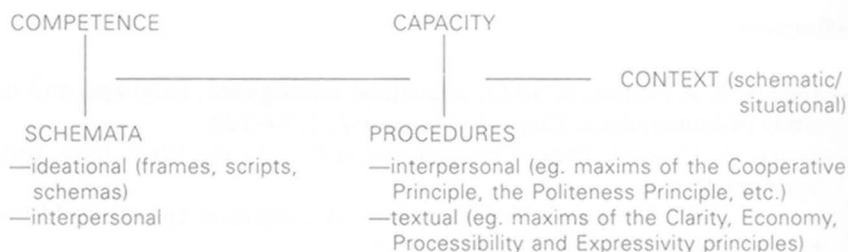
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The adjustment of propositions so that they fit into the changing situation of shared knowledge is the «textual» aspect of the matter. The use of such propositions to conduct social business, to perform illocutions of different kinds is the «interpersonal» aspect of the matter. Both are features of the communicative function of language (Widdowson 1984: 71)

It is difficult to see how language can be said to have the function of transmitting itself through texts, whereas it is possible to say that it serves the function of transmitting content and of regulating social interaction. On the other hand, it would be appropriate to talk about a textual rhetoric which reveals stylistic preference in language use. It has been stated that there are a number of textual principles at work in the development of languages (see Slobin 1979). Leech terms these *clarity*, *processibility*, *economy*, and *expressivity*. It is interesting to note that Halliday's textual component of a grammar explores the nature of the resources we can use to observe those principles. Thus, the systems of thematisation and information are related —the same as the *Processibility Principle* — to the adequate ordering of the parts of the message and its segmentation into units. Similarly, the devices for cohesion (reference, substitution, ellipsis and conjunction) contribute directly to the enforcement of the *Economy Principle*, and indirectly (if they are not enforced) to the enforcement of the *Clarity Principle*, since they increase (clarity) or reduce (economy) the amount of time involved in encoding and decoding. The *Expressivity Principle* may make use of just about any resource for the sake of effectiveness in expression. For example, full redundancy may be used in a message even though it is not necessary for reasons of ambiguity (thus violating economy and clarity at the same time) as in Leech's example (1983: 68).

John Brown was guilty of the crime, and John Brown would have to pay for it.

It is now evident that we can neither talk of textual schemata nor of a true textual function of language. In the same way, we have observed that the interpersonal function cannot be considered, strictly speaking, schematic but rather procedural (and pertaining to an interpersonal rhetoric). Also, the type of knowledge derived from the ideational function seemed to account for the concepts of *frames*, *plans* and *scripts*. But the picture is far from complete. In order to establish and maintain social relations (or to get people to do things) we need to have some knowledge about social roles and conventions. Therefore, we need to postulate the existence of *interpersonal schemata* which account for this sort of knowledge. They are of the type activated, for instance, in the comprehension of the utterance *Close the window* when told by the lord to the servant.

No we find ourselves in a position to systematize the relationship between competence and capacity as follows:

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COMPETENCE                          CAPACITY
    |                                   |
    | ─────────────────────────         | ──────── CONTEXT (schematic/
                                                            situational)
SCHEMATA                            PROCEDURES
—ideational (frames, scripts,       —interpersonal (eg. maxims of the Cooperative
  schemas)                            Principle, the Politeness Principle, etc.)
—interpersonal                      —textual (eg. maxims of the Clarity, Economy,
                                      Processibility and Expressivity principles)
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Notice that the activation of a certain schema in discourse depends not only on textual clues but also on situational factors and even on previous schemata. The use of schematic —rather than situational— contexts is typical of literary fiction and poetry, and that is why literature can become extraordinarily useful in exercising an individual's language capacity (Widdowson, 1984). Also, a schematic context is a purely mental phenomenon and should be of interest to people working on cognition. But since schemata are activated by the exercise of language capacity a cognitive theory should take into account many concepts related to pragmatics.

The above diagram enables us to arrange all of Graesser's knowledge domains (apart from the linguistic domain) in a more coherent fashion. Thus, the knowledge about roles, personalities and objects, as well as intentional conceptualizations, would fall within the scope of interpersonal schemata; frames and scenarios (spatial knowledge) are ideational; causal conceptualizations are inferential and would belong to a set of interpersonal procedures; lastly, the connection between Graesser's rhetorical domain and textual procedures is plainly evident.

4. Conclusion

It has been my main purpose in writing this essay to bring to light three important claims concerning a theory of discourse:

1. Both formal (ie. psychological) and functional accounts of language are complementary rather than contradictory. In my opinion, many useful insights can be gained from a study of their relationship.
2. All human knowledge domains can be accounted for by means of the paradigm competence/capacity. This paradigm can be translated in cognitive terms into the paradigm schema/procedure.
3. The pragmatic notions of presupposition and implicature may be useful for a better understanding of the concepts of competence and capacity, on the one hand, and of schema and procedure, on the other.

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