CATEGORIES AND ACQUISITION IN THE PARAMETERS PERSPECTIVE

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Abstract

This paper has a twofold aim, first to argue for a new version of the null subject parameter, and second to develop (some aspects of) a general theory of parameters. In what follows we will first sketch our version of the null subject parameter in some detail; we will then turn to a brief discussion of its implications for the theory of parameters in general.

1. The null subject parameter

Our version of the null subject parameter revolves around the idea that I is a head selecting an argument in English, but not in Italian. If we call an argument-selecting head a functor, our idea is that the null subject parameter amounts to (1):

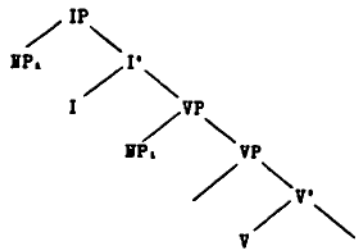
(1) I is a functor in English (but not in Italian)

In particular we assume that I in English selects a proposition with a verbal head, in other words a small clause VP. Furthermore we assume that by the Extended Projection Principle I must project a position with which it agrees, as in (2):

(2) Extended Projection Principle:
I projects one position with which it agrees

If the position projected by I under (2) is the Spec of IP position, then at S-structure configurations of the type in (3) are predicted to arise in English:

(3)



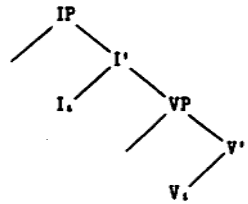
In (3) I selects a small clause VP, with the subject NP$_i$ adjoined to the predicate. If V has an external theta-role to assign, this can be assigned at D-structure to the VP-adjoined position under sisterhood to VP. At S-structure, on the other hand, if NP$_i$ must be assigned case, it must move to the Spec of IP position

which is projected by I and agrees with it. The structure in (3) then differs from the standard sentential structure in Chomsky (1986) in positing a VP-adjoined position identified with the subject position at D-structure, and distinct from the S-structure subject position identified with the Spec of IP. This difference however has been motivated in recent literature quite independently of the null subject parameter, on locality grounds. In particular, given (3) it is easy to see that movement from the object to the subject position (or binding from the subject to the object position) falls under the core definition of government, since there is no maximal projection which dominates the object and excludes the subject. This of course is not true given the structure in Chomsky (1986).

The crucial question concerns the structures derived under the parameter in (1) in Italian. To begin with, I in Italian must also have some selection properties, since apart from the X-bar schema, the building of syntactic structures is driven only by selection. By hypothesis, Italian I does not have argument-selecting properties; we can assume however that another type of selection is universally available, namely head-to-head selection. If so, we can assume that under (1) I in Italian selects another head, and in particular a V head.

The next problem we are faced with is expressing head-to-head selection configurationally. In particular, if argument selection is in general expressed by sisterhood, head selection cannot be similarly expressed. Given the X-bar schema, a head can be sister to the maximal projection of another head, but not to another head. There is however a standard device to override non-locality in constituent structure and this is of course chain-formation. Thus head-to-head selection can be expressed by the formation of a chain including the selecting and the selected head. If we adopt coindexing as the standard representation for discontinuous dependencies in grammar, the partial structure in (4) is then derived for Italian:

(4)



In (4), the (I, V) chain, being driven by selection, rather than by movement, is of course a D-structure, rather than an S-structure chain. If in (3) V and I, being functor heads, had distinct argument selection, hence projection, properties, we can assume that in (4) the (I, V) chain behaves as a unit from the point of view of projecting argument positions. The consequences of this are better examined by considering the phenomena associated with the null subject parameter one by one.

2. Free inversion

Free Inversion is one of the standard phenomena associated with the null subject parameter. In Italian as in English subjects can appear in pre-VP position, as illustrated in (5) and (7) with a transitive and an unaccusative verb respectively; but contrary to English they can also appear in post-VP position, as with the transitive verb in (6), or in post-V position with an unaccusative verb, as in (8):

(5) Tuo fratello ha scritto una lettera
Your brother has written a letter
(6) Ha scritto una lettera tuo fratello
*Has written a letter your brother
(7) Tuo fratello viene
Your brother comes
(8) Viene tuo fratello
*Comes your brother

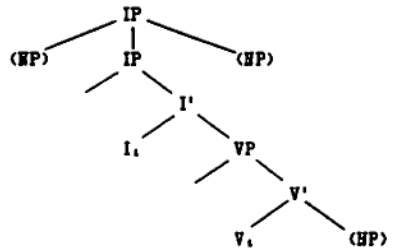
The English data are of course exactly predicted by the theory given, since the Spec of IP position, projected as the position I agrees with, is rigidly ordered before I, hence before VP. Two different approaches are on other hand possible for the Italian data. The standard approach, as in Burzio (1985), proceeds from the assumption that examples of the type in (6) and (8) have a non-inverted subject position filled by an empty expletive; an alternative approach, suggested in Borer (1986), proceeds from the assumption that the the only subject position is the inverted position. The first approach corresponds to a theory of projection under which the Spec of IP position is universally projected as the position I agrees with; the second approach corresponds to a theory of projection under which the inverted positions in (6) and (8) can also be projected by I as positions it agrees with. It is the second approach that we will pursue here.

The Extended Projection Principle in (2) simply requires I to project a position that it agrees with. If in English I projects the Spec of IP position, this can be imputed to the fact that in general the Spec of YP is the position that a head Y agrees with. Consider now Italian. It is part of our hypothesis above not only that I selects a V head, but also that the selection chain (I, V) behaves as a unit from the point of view of projecting positions. In general, notice that given a selection chain $(Y_1, \ldots, Y_n)$, there will be one and only one head in the chain which is a functor, namely Y_n. We can assume then that any projection properties associated with non-functor members of the chain can only be realized through the functor member Y_n. We can in fact assume that the ability to project positions is one of the properties of a functor, hence the impossibility for non-functors to project them. If so, the only stipulation we need is for a mechanism through which the projection properties of non-functor heads become associated with the functor head in their chain.

Consider the (I, V) chain again. If we are correct the projection properties of I become associated with V. This amounts to saying that I is now a feature of V. That this I feature must be

projected by V follows from the Extended Projection Principle (1). Suppose we assume that an I feature on a head is projected to a sister position to the head, or percolated to the maximal projection of the head and projected to a sister position to it, as other features are. I can then be projected to a sister position to V; or alternatively it can be percolated up to the maximal projection of V, which we can take to be IP, i.e. the maximal projection of its chain, and projected to a sister position to IP, i.e. an IP-adjoined position. Three possible positions result, as in (9):

(9)



The sister position to V in (9) corresponds of course to the inverted subject position in (8); the pre-IP position in (9) to the subject position in both (5) and (7). Finally, in the case of adjunctions, contrary to Spec and object positions, there is no reason to believe that they are ordered. Hence the post-IP position in (9) can straightforwardly correspond to the inverted subject position in (6).

3. Extraction

Another standard phenomenon associated with the null subject parameter is that, while in English it is impossible to extract a subject from a position adjacent to a <u>that</u> or a wh-phrase, the corresponding extractions are perfectly wellformed in Italian, as indicated in (10) and (11) respectively:

(10) Who do you believe (*that) has written
Chi credi che abbia scritto
(11) *Who do you wonder what has written
Chi ti chiedi che cosa abbia scritto

According to Rizzi (1982), which we follow here, the possibility of extracting the subject in (10)-(11) in Italian depends on the availability of inversion. Suppose for instance that the grammar contains a principle, perhaps to be derived on more general grounds, of the type in (12):

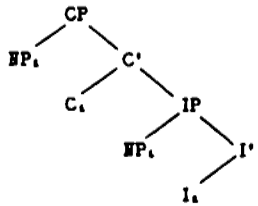
(12) A trace in A-position must be head-governed

We can take head-government to correspond to canonical projection by a head, as in (13), where canonicity is understood as in Kayne (1984):

(13) β head-governs β iff
β is an X°, β projects α and
β is canonically ordered with respect to α

The trace of a subject in Italian can always be head-governed, since it can always be in a position canonically projected, to the right, by V or by the I associated with V. In English on the other hand, the Spec of IP position is never head-governed by I, that projects it, since it is not canonically ordered with respect to it. Suppose then movement takes place from the Spec of IP to the Spec of CP. If the C position is empty we can assume that head-Spec agreement is triggered and consequently the configuration in (14) is created, where the agreement of the trace with its antecedent further triggers the agreement of C and I:

(14)



If we assume that C and I agree in the I features, I in (14) head-governs NP$_i$ from the C position. Hence the structure is predicted to be wellformed under (12). But if the C position is filled by <u>that</u>, blocking agreement with the Spec of CP, or if the Spec of CP is filled by another wh-phrase, preventing movement of NP$_i$ to it, the Spec of IP position remains non head-governed, and illformedness is predicted under (12). These predictions of course exactly correspond to the distribution of data in (10)-(11).

4. Null subjects

The phenomenon that names the null subject parameter is the presence of empty subjects with pronominal interpretation in languages like Italian; a language like English of course does not have null subjects in this sense, as in (15)-(16):

(15) Lui parti'
He left
(16) Parti'
*Left

If the null subject parameter is formulated as in (1), it is not difficult to find a reason why the head I that projects the Spec of IP position and agrees with it in English cannot licence an empty category in this position. Let us assume that in general empty categories are licenced through chain formation. A chain (I, NP) in English can be illformed for the same reason for which a chain (V, NP) is illformed, namely, functors and arguments cannot licence each other in a chain.

Consider now Italian. According to our discussion of Free Inversion, I is not a functor, but a property of the functor V it selects. If so, nothing prevents I from licencing NP in a chain (I, NP) very much like an NP can be licenced by other properties of V, or heads associated with V, such as clitics.

5. Expletives

One phenomenon crucially associated with the null subject parameter in Hyams (1986) is the absence of (overt) expletive pronouns in languages like Italian, as opposed to languages like English. So there simply is no word for word counterpart to English (17) in Italian; the only possible counterpart is again inversion as in (8):

(17) There comes a man
Arriva un uomo

Under a theory of inversion of the type in Burzio (1985), where Italian examples of the type in (17) have an empty expletive in subject position, the problem is of course the lack of overt expletives, rather than of expletives in general. Given the independently known fact that overt subject pronouns in Italian can only be used emphatically, the absence of overt expletives is explained on the grounds that expletives are intrinsically incompatible with emphasis.

Under our theory, on the other hand, inversion structures of the type in (17) can be generated without empty expletive subjects. The question then arises whether there are expletives at all in Italian. The answer appears to be that, if on no other grounds, expletives in Italian are excluded by the Least Effort Principle of Chomsky (1988). Indeed the derivation of sentences like (17) without expletive subject only requires the generation of a postverbal subject position. The derivation of sentences like (17) with an expletive subject requires that the improper chain formed by the expletive and the inverted subject at S-structure be transformed into a movement chain at LF. By a measure of complexity that takes into account the number of times movement applies, or by a different measure that takes into account for instance the levels of representation involved, the derivation with expletive subjects is the more complex one, hence is systematically excluded in favor of the derivation without expletive subjects. This means that our theory, together with the Least Effort Principle, derives the general lack of expletives in Italian.

6. V to I

A phenomenon associated with the null subject parameter in Pollock (1987) and Belletti (1988) is the movement of a main V (i.e. a functor V) to I. If we assume that an adverb of the type of completely (completamente in Italian) is generated under VP, though not under V' (perhaps in the Spec of VP position), its surfacing in front of a main V in English can be taken to reflect the D-structure word order. On the contrary its surfacing after a main V in Italian

can be taken to indicate that movement of the V to I has taken place. The English word order is impossible in Italian, as in (18), and viceversa, as in (19):

(18) John completely lost his mind
*Gianni completamente perdette la testa
(19) Gianni perdette completamente la testa
*John lost completely his mind

The same patterns are also observed in Italian and in English for the position of main V's with respect to floating quantifiers and the negation.

According to Pollock (1987), and Chomsky (1988), movement of V to I creates an adjunction to I, [I V+I], where the properties of V are visible only if they percolate to I. If this percolation is not possible, for whatever reason, the properties of V are not visible, and a violation of the Theta-Criterion necessarily ensues. If so, the impossibility for a main V to move to I in English can be explained. The question is whether the possibility of moving a main V to I in Italian is related to the null subject parameter; and if so, how.

Under our theory, I and V are of course both functor heads in English. We can then assume that a chain (I, V) is illformed because it involves heterogenuous functor heads. In fact, nothing prevents us from assuming that the chain could become wellformed if the features of V were allowed to percolate to I; but this is irrelevant for English. Consider then Italian. Again we can assume that movement of V to I creates an adjunction to I. But whether the features of V can percolate to I or not, the chain (I, V) can always be formed as a selection chain, involving the non-functor head I. Movement of V to I is then predicted to be possible in Italian under the null subject parameter, as desired.

7. I to C

The phenomenon of inversion of an auxiliary to the front of a subject is again associated with the null subject parameter in Hyams (1986). Subject/ auxiliary inversion, which corresponds in the framework adopted here to movement of the auxiliary from I to C, is possible in English but not in Italian, at least in tensed sentences, as in (20):

(20) Has John written
*Ha Gianni scritto

Consider English. Auxiliaries, contrary to main V's, can be associated with the I position, perhaps because they can be generated directly under it. From the I position, auxiliaries can move to the C position; if Rizzi & Roberts (1989) are correct, we can assume that movement from I to C simply proceeds by substitution of I to C. Consider then Italian. An auxiliary or a main V can both reach the I position; however from the I position it is impossible to move them to C. Of course Italian differs from English in that an auxiliary or main V and the I they move to are

part of the same selection chain. The impossibility of moving further than I amounts then to the impossibility of moving from a chain-internal position to a chain-external one. The question is whether such a generalization can be derived from the theory.

We assume that all improper chains at S-structure, including all non-movement chains, must be translated into movement chains at LF. It can be independently argued furthermore that LF is characterized by one type of movement only, i.e. scope-taking, in practice, movement to adjoined positions. Thus all selection chains of the form $(\alpha_1, \ldots, \alpha_n)$ must translate into A'-chains headed by α_n at LF. Suppose now that movement takes place internally to a selection chain at S-structure, as when V moves to I in Italian. In this case, we can assume that V can still take scope over (I, V) at LF; hence no problems arise. Suppose on the other hand that movement takes place first chain-internally from V to I and then chain-externally to C. In this case, we can assume that scope-taking of V over the selection chain (I, V) creates an illformed structure, given that V in the operator position is itself bound from the C position. No special assumptions are needed to rule out this configuration, only the assumption that syntactic operators must be free.

8. Other facts

If what precedes is correct, we can claim for our theory the ability to derive a wider range of phenomena under the parameter in (1) than any other version of the null subject parameter. Consider for instance the parameter in Rizzi (1982), taken here as the best representative of its family, according to which I can be +pronominal in Italian but only −pronominal in English. This parameter accounts for those of the phenomena involved that relate directly to the subject position; but precisely because it is formulated in terms of the nominal or agreement properties of I, it cannot deal with phenomena such as movement to or from I, which are unrelated to these properties. The relationship between properties of subjects and properties of I under movement is recognized in Hyams's (1986) theory; but the latter can only express this relationship partially, relinquishing Free Inversion to an independent parameter.

In fact the range of phenomena that can be derived under our parameter can potentially be widened. One wellknown difference between English and Italian again discussed in the context of the null subject parameter in Hyams (1986) is that English but not Italian allows for VP-Deletion, as in (21):

(21) John has not written, but Mary has
*Gianni non ha scritto, ma Maria ha

In our theory nothing bars VP-Deletion in English; the impossibility of VP-Deletion in Italian can on the other hand be imputed to the presence of a discontinuous constituent (I, V), corresponding to the selection chain, which cannot be deleted partially.

Now, notice that if a language patterns with English or Italian with respect to any of the phenomena listed, it is predicted

to pattern with English or Italian with respect to all the others, unless some independent parameter intervenes. In this respect French seems to conform to the prediction, except for VP-Deletion. Obviously either the facts in (21) do not fall under the null subject parameter; or, as we believe, there is some property of the parameter, or an independent parameter, concerning French which is not yet understood. Similarly, Spanish seems in general to be as good an example of a null subject language as Italian; but there are obvious differences between the two languages in V-movement patterns. These and similar problems are left open here.

9. Acquisition

If Hyams (1986) is correct, the acquisition of English provides strong evidence that all of the phenomena that our theory derives under the null subject parameter must indeed be associated with it. While the subject and I system of Italian is in place from the beginning of acquisition, the English learner appears to start with the Italian system, and then to proceed to the English system. This acquisitional step is characterized by the elimination of null subjects, but also by the introduction of correct rules for subject/auxiliary inversion, and so on. Hyams (1986) suggests that what is involved in this stage of the acquisition of English is the resetting of the null subject parameter from the Italian value to the correct English value. But this explanation only holds to the extent that the phenomena related in the acquisitional process are in fact all associated with the null subject parameter.

Notice that there is a natural alternative to the parametric approach to acquisition, namely the maturational approach, as defined in Borer and Wexler (1987). In terms of this approach, it is possible to say for instance that the category I, in terms of which the null subject parameter is formulated, only becomes available through maturation. Once maturation is accomplished, the parameter can be set, for all we know, instantaneously. This alternative is explicitly pointed out in Cinque (1988), furthering ideas in Radford (1988). However if the initial stage of the subject and I system in Italian coincides with the final state, this hypothesis appears to be untenable; the obvious reason is that the system can only work if the category I is present from the beginning of acquisition and not subject to maturation.

Under a parameters approach to acquisition that uses our version of the null subject parameter in (1) I can of course be present at the beginning of the acquisition as a non-functor head; hence the parallel behavior of Italian and English. The correct value for English can then be set on the basis of evidence. Two wellknown general questions need to be answered under such a theory. The first question is why the Italian value of the null subject parameter represents the starting point for acquisition. The second question is what triggers the acquisition of the English value. This second question of course does not have any simple answer, such as the first piece of evidence incompatible with the existing setting, and we will not pursue possible answers here. Notice however that only a purely maturational approach can eliminate the question altogether, and this has been shown to be impossible above.

The first question on the other hand can be usefully investigated in the context of a general theory of parametrization.

10. Parameters theory

Searching for a theory of parametrization is essentially synonymous with searching for conditions that restrict the range of possible parameters. Arguably the most successful condition proposed so far, at least heuristically, is that parameters are restricted to the lexicon. A more precise content for this hypothesis is provided in Manzini and Wexler (1987), where settings of the locality parameter for referential dependencies are treated as features associated with single lexical items. Of course, the null subject parameter does not appear to be immediately reducible to this approach, since what is involved in (1) is not a feature of single lexical items, but a feature of entire categories, such as I.

In order to extend the lexical parameterization approach to (1), however, it is simply necessary to admit that the membership of certain lexical classes are categories instead of lexical items. It is then possible to assume that the +functor class in the lexicon includes I in English, but not in Italian, in conformity with the Lexical Parametrization Hypothesis.

11. Markedness theory

The question must now be considered whether there is a definition of markedness under which it can be predicted that the Italian value of the null subject parameter is the unmarked value, i.e. the universal value prior to experience, hence the universal starting point for acquisition. This is of course the first of our two questions above, and the success of the parametric approach to acquisition depends on it.

Saying that the Italian value of the parameter in (1) is the unmarked value means saying that in the unmarked case I is a −functor. This does not necessarily imply that the −functor feature is unmarked with respect to the +functor feature. In particular, it is natural to assume that the membership of the +functor class universally includes the 'lexical' categories V, N, A, ... As for the categories that are not members of the +functor class universally, essentially the 'functional' categories, we can assume that in the unmarked case they belong to the default −functor class. If so, the Italian value of the parameter in (1) is indeed the unmarked value. The English value of (1) then results to be marked in the straightforward sense that it implies an alteration of the UG setting on the basis of evidence.

12. References

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