

Grammatically-Based Target-Inconsistencies in Child Language

1. Introduction.

The continuity hypothesis states that early grammars are full-fledged UG-constrained grammatical systems, cast in the same mould as adult grammars and accessible to description and explanation through the same analytic tools. The fundamental validity of this hypothesis is confirmed by the results achieved by theory-guided acquisition studies over the last twenty years (see Guasti 2002 for a detailed synthesis). But the continuity hypothesis must deal with the dynamics of development. The study of development reveals that early productions are not mere structural copies of adult utterances: there are certain systematic discrepancies which call for an explanation. One important task of developmental linguistics is to precisely describe these discrepancies, and the changes they undergo. The analytic tools provided by formal syntax have turned out to be precious in this respect, but we want to go beyond an accurate descriptive chart of development, and try to understand what the inner causes are of the observed developmental course: why does the child entertain partially non-target consistent systems? And what makes her eventually converge to the target system?

The attractive features that this field has for the theoretical linguist are many. On the one hand, the fact that certain analytic tools developed to deal with the variation of adult languages show a significant explanatory potential in a completely different domain, language development, offers an important corroboration of the validity of formal linguistic models as a unifying framework for the study of language as a cognitive capacity. Conversely, the data of development offer new important testing grounds for linguistic models. The hope is that, providing new variations on the fundamental research theme of the UG-constrained systems -- how UG-constrained systems manifest themselves in minds/brains at different stages of cognitive development, at different levels of exposure to experience, etc.-- , language development may provide novel kinds of evidence for general linguistic theory, with consequences which may reverberate on the study of adult languages, and of the language faculty in general. Last but not least, the dynamics of development offers a strong challenge and incentive to the linguist -- to paraphrase Chomsky (2004) in a slightly different domain -- to “go beyond explanatory adequacy”, and ask the question why the developmental course has the properties uncovered by the descriptive work, and not other imaginable but unattested properties.

In this article I would like to argue for a grammar-based and performance-driven approach to the target inconsistencies in child language, developing a line of inquiry presented in Rizzi (2005a). The empirical phenomenon which I will mainly focus on to substantiate this approach is the familiar case of systematic subject drop observed in child language. The analysis will integrate the grammar-based, performance-driven perspective on development with two advances in theoretical and descriptive syntax: the cartography of syntactic structures (Belletti ed. 2004, Cinque 1999, Cinque ed. 2002, Rizzi ed. 2004a), and Phase Theory (Chomsky 2001, Nissenbaum 2000).

2. Four hypotheses on target inconsistencies.

A central empirical problem that a theory of development must address is that early productions around the age of two only roughly correspond to adult productions: systematic discrepancies involve the omission and sometimes the non target consistent use of linguistic expressions. What is the nature of the observed discrepancies? Three main approaches have been considered:

(1) The discrepancies are *performance-based*: the grammar of a two-year older is fundamentally adult-like, but the child speaks through a performance filter which makes its productions less than fully faithful to the internalized grammar.

(2) The discrepancies are *grammar-based and linked to properties of the particular grammar*: an early grammar may differ from the corresponding target adult system in the use of some genuine grammatical options, with consequences observable in production; in terms of parametric theory, certain parameters may be initially set on non-target consistent values, and later undergo resetting.

(3) The discrepancies are *grammar-based and linked to properties of Universal Grammar*: UG may not be operative in its full-fledged form initially, as certain principles or computational devices may be subjected to maturation.

Hypothesis (1) makes the strongest continuity assumptions. Obviously, parameters must be fixed at some point, but the assumed scenario here is that when syntactically relevant production starts (the so-called “two word stage”), the child has already fixed the main parameters on the target values, in a system where UG principles are fully operative from start. So, the underlying competence is basically adult-like, and the performance filter is entirely responsible for the observed discrepancies. To take a classical example: children acquiring English (and other languages requiring the obligatory expression of the subject) omit subjects selectively and systematically for several months; performance-based approaches to early subject drop assume that the process is induced by the needs of an immature production system, which applies certain grammar-independent strategies of structural reduction (Valian 1991, Bloom 1990). The cause of development here is the growth of performance systems.

Consider now hypothesis (2). Under the theory of parameters, the natural way to understand this approach within continuity guidelines is to entirely impute the discrepancies between early productions and target systems to parameter fixation. An early grammar may differ from the corresponding target grammar in that it may have certain parameters fixed in different ways, for instance reflecting a default value which may later be changed to a marked value on the basis of linguistic experience. This is, for instance, the interpretation given by Nina Hyams (1986) of subject drop in early English: children start assuming that the Null Subject Parameter, differentiating adult languages like English and Italian (Rizzi 1982, 1986) is initially set on the positive value (“a null pronominal subject is possible”), and this is reflected in the early subjectless productions. The Null Subject Parameter is later reset on the negative value on the basis of the evidence available to the English learner (say, the presence of overt expletives in the primary linguistic data); this requires time and the processing of much evidence, so that a developmental effect is observable. Approach (2), much as (1), is consistent with the assumption of a fully developed UG from start: early systems are possible human languages which may differ from the target adult systems along the same lines which are responsible for the variation of adult systems.

Hypothesis (3), while still formulated within continuity guidelines (“UG-constrained maturation”) assumes some qualitative difference between early and adult systems: while the bulk of UG structure is operative in early systems, some principles or computational devices may not be operative initially (i.e., the capacity to form A-chains: Borer & Wexler (1987)), or may be operative in a more “archaic” form, or there may be special principles active only during acquisition (e.g. Wexler’s (1998) Unique Checking Constraint), thus determining certain observable target inconsistencies. To stick to our example of early subject drop, I proposed in earlier work (Rizzi 1992, 1993/94, 2000b) that the phenomenon may be reduced to the option the child has of “truncating” the external layers of the structure, and speculated that this option could result from

the non operativity in early systems of the UG principle requiring root clauses to be full CP's. In what follows I would like to basically maintain the structural analysis of the phenomenon, but modify the speculation on its causal determinant. The main empirical motivation for this modification being the observation that certain adult languages have a subject drop phenomenon, distinct from the Null Subject Parameter, and with the same structural characteristics as early subject drop, so that the relevant kind of subject drop appears to be a UG parameter, rather than a manifestation of a somehow "immature" UG.

In this article I would like to argue for an approach which combines aspects of (1) and (2) (and, to a certain extent, also of (3)):

(4) Discrepancies between child and target systems are *grammar-based and performance-driven*. Certain parameters are initially set on values which facilitate the task of an immature production system.

In this approach, the child uses certain grammatically determined strategies consisting in the initial adoption of certain parametric values, and which have the effect of alleviating the task of the production system, for instance by maximizing the use of grammatically licit processes of ellipsis (intending this term in its broader use of omission of pronounced material). The strategy is grammatically determined, and consists of the use of UG-consistent processes, corresponding to the choice of parametric values which are expressed by some adult languages; but it is performance-driven in that the causal factor ultimately determining it lies in certain needs of the grammar-external performance systems. In this approach UG constrains early systems in its full form, with the proviso that some UG parameters are preset on values which facilitate production. After the production system has grown more efficient, the "facilitating" values are kept if supported by experience, and abandoned otherwise.

One factor which makes performance-based approaches appealing is that the major target-inconsistencies observed in early productions take the form of omissions of material which is obligatory in the target grammar: omissions of pronouns, determiners, functional verbs, verbal inflections expressing agreement and tense, etc. (Kolk 2001). One important discovery of theory guided acquisition studies is that the child masters the morphosyntax of such elements, so that inappropriate use, eg. of tense and agreement morphology, is virtually unattested, whereas omissions are frequent, a state of affairs which is immediately expected under performance-based approaches: the child has the underlying knowledge, but simplifies structures by omitting elements due to performance limitations. But unqualified performance approaches are unable to explain the grammatical regularity of omissions, the fact that they seem to obey strict and categorical structural rules, and manifest options which, while being disallowed in the target grammar, may be attested in other adult languages. Grammar-based approaches (2) are confronted with the opposite problem: they immediately capture the grammatical nature of target-inconsistencies, but don't offer any immediate explanation for the fact that only some particular grammatical options give rise to target inconsistencies, nor for the fact that the adopted options converge to somehow simplify the task of performance systems. The approach proposed here tries to combine the advantages of both. It also shares with (3) the assumption that maturation is a fundamental engine of development, but it does not assume that particular aspects of UG mature; rather, it assumes a certain learning strategy, a component of what has been called the Language Acquisition Device, which uses mechanisms of full-fledged UG and remains active for some time, functionally motivated by the needs of immature performance systems, and then ceases to be operative after the appropriate growth of the performance systems (possibly to be reactivated in special circumstances, such as severe language pathology: Kolk, op.cit).

3. Parametric discontinuity and two groups of parameters.

Hypothesis (4) (and also (2)) looks at UG parameters as the fundamental formal device to express target-inconsistencies in development: parameter fixation is the locus of the limited elements of discontinuity observed. The great appeal of this approach is that the same formal mechanism can be held responsible for two very different aspects of the language faculty: language variation and language development. The approach is empirically supported by (and leads us to actively search for) the state of affairs that will be referred to as “parametric discontinuity”:

(5) Parametric Discontinuity: Early grammatical system, as expressed by natural and elicited production, may temporarily adopt target-inconsistent parametric values which are later abandoned.

It should be noted that the systematic occurrence of parametric discontinuity is not uncontroversial. In fact, an important discovery of acquisition studies in the late eighties and the nineties is precisely the observation that parametric discontinuity does *not* occur in the case of some major parameters: certain parametric properties have clearly been determined by the child in a target-consistent way when syntactically significant production starts:

It is a rather traditional observation that the headedness parameter (possibly recast as a movement parameter, e.g. in a system like Kayne 1994) is already fixed when production starts: learners of a VO language basically produce VO structures, and the same consistency is observed in the acquisition of an OV language. This is true not only for languages with consistent headedness, but also for more complex cases like OV in Germanic, with children consistently producing OV structures with non-finite verbs (see Poeppel & Wexler 1993).

Similarly for basic verb movement parameters. Pierce (1992) and Weissenborn (1990) showed that learners of French assume V to I movement for finite verb forms from very early on, while learners of English never make this assumption for lexical verbs (Stromswald 1990), as in the target system.

Similarly, the parametric system determining generalized V-2 was argued to be correctly fixed around the age of two in the acquisition of German by Poeppel and Wexler (1993). <FN 1>

The observation that early subject drop is not amenable to the Null Subject Parameter (Valian 1991, Rizzi 1992) immediately led to the conclusion that the Null Subject Parameter is also fixed from very early on. This is shown by the fact that learners of non Null Subject languages like English and French typically don't drop subjects in non-initial position, while learners of Italian, Spanish, etc. freely omit non-initial subjects. See below for more detailed discussion.

These significant findings led to the assumption that parameter setting takes place very early on, before syntactically significant production starts, a state of affairs directly expressed by Wexler's (1998) Very Early Parameter Setting. If this holds in general, and no parametric discontinuity is observed in production, one should look elsewhere for the analysis of target-inconsistencies. On the other hand, if early fixation indeed seems to hold for some major parameters, it is not obvious that the conclusion holds for other kinds of target-inconsistencies in which the child-adult discrepancies bear a significant structural resemblance with what looks like genuine parametric differences:

The Root Subject Drop observed in the acquisition of non-Null Subject Languages seems to have an exact analogue in certain adult languages which also permit the dropping of sentence initial

subjects (Rizzi 2005a, and see below), and closely resembles other parametric properties, such as Topic Drop, which also exploit the privileged status of the Specifier of the Root.

The familiar phenomenon of Determiner Drop in child language has been interpreted as a case of parametric discontinuity (Chierchia, Guasti & Gualmini 2001), with children exploring the “Chinese” value of the determiner parameter before converging to the target-consistent obligatoriness of D in various languages.

The dropping of the copula: Becker (2000) has argued that the dropping of the copula in Early English tends to honor certain semantically-based distinctions, like the distinction between individual-level and stage-level predicates, much as copular drop in Modern Hebrew (and choice of distinct copular forms in other languages), according to certain analyses.

Root Infinitives: adult languages use to a variable degree infinitival forms in root clauses; while there is no clear case of an adult language using root infinitives with the same frequency and interface properties as child languages, it has been argued by Avrutin (1998) that such adult instances as the Russian root infinitives share significant structural properties (incompatibility with *wh*, with functional verbs, etc.), enough to make a partially common analysis in parametric terms plausible (see also Lasser 1997).

Residual V-2. While at least the V movement component of generalized V-2 is correctly determined from very early on, construction-specific “residual” V-2 (I to C inversion in questions and other special constructions in English and French) is problematic, with a clear tendency to avoid inversion in development, across the board in the earlier phases and in particular circumstances later on (with *why*, with negative questions: Thornton (2004). Guasti, Thornton & Wexler 1995), much as in certain adult languages (Italian, Spanish, etc. permit uninverted structures with *why*, certain Northern Italian Dialects have inversion with positive but not with negative questions, etc.) .

Strategies of A' extraction. Confronted with the production of complex *wh* extraction sentences in elicitation experiments, children typically use non-target consistent *wh* extraction strategies that are attested in some adult languages, such as Partial Wh Movement, and Wh copying (Thornton 1990, 1995, van Kampen 1997, Gutierrez 2004,...)

In conclusion, we seem to have good reasons to isolate two groups of parameters, as for the time course of parameter setting: we will call them group A and group B parameters.

(6) Two groups of parameters:

Group A: mainly word order parameters, but not only, don't give rise to parametric discontinuity observable in production, are fixed according to Wexler's (1998) Very Early Parameter Setting:

- Head-complement;
- V to I (Pierce 1992, Stromswald 1990, Weissenborn 1994,...)
- Generalized V-2 (Poeppel & Wexler 1993,...)
- the Null Subject Parameter (Valian 1991, Rizzi 1992, 2005a,...)

Group B: mainly grammatically determined ellipsis in the early phases, but not only, give rise to parametric discontinuity:

- Root subject Drop: (Rizzi 1992, 2005a);
- Determiner Drop (Chierchia, Guasti & Gualmini 2001,...);

- Ellipsis of copulas and auxiliaries (Becker 2000, Franchi 2004, etc.),
- Root infinitives (Avrutin 1998)
- Residual V-2 (De Villiers 1991, Thornton 2004, Hamann 2003),
- Grammatical devices for A' extraction (Thornton 1990, 1995, van Kampen 1997, Gutierrez 2004,...).

This way of putting things immediately raises a number of questions: Why are different parameters set at different times? If we take the beginning of syntactically relevant production as the critical temporal divide, do we get a natural division between “early” and “late” parameters? Or, in other words, do groups A and B form “natural classes” of parameters in any sense? And, most importantly: what causal force induces the child to visibly adopt, for some time, non-target consistent values for parameters of the B group? And also: how does “delearning” or parameter resetting take place when learners eventually converge on the target-consistent values of parameters of group B?

4. Performance-driven parametric discontinuity.

The approach which I would like to explore here is the one which has been anticipated as point (4). The production system around the age of two is not entirely up to its task for several reasons: working memory resources are limited, much fine-tuning at the interface is presumably needed to coordinate symbolic linguistic representations and the activation of the motor programs involved in speech, automatization of the different components must improve (e.g., in accessing morphological knowledge: Phillips 1995), etc. The proposal is that, in order to cope with this situation, the Language Acquisition Device adopts a formal strategy which has the functional role of simplifying the task of the immature performance system. The crucial point is that the strategy is based on UG resources: it consists of recruiting certain parametric values which facilitate production. Consider the following statement of the strategy:

(7) Adopt parametric values which reduce computational load on the production system and are not contradicted by positive evidence.

Even in the absence of a full and precise characterisation of computational load, it looks plausible that any grammatically licit ellipsis will reduce the burden of the production system, by allowing it not to pronounce chunks of the linguistic representation, and thus saving on the activation of the motor programs and the other computation involved in the production of overt elements. This already gives a hint as to the partitioning of parameters into the A and B groups. Word order parametric values may be largely irrelevant in increasing or decreasing the burden of the production system, so that they are not affected by strategy (7), whereas parameters concerning grammatically licit ellipsis clearly are relevant for (7).

The picture still is too rough. The empirical evidence suggests that we should put at least one “ellipsis” parameter, the Null Subject parameter, in class A, so, why does the NSP not fall under strategy (7)? Clearly a sharper distinction must be introduced. Moreover, some parametric options appearing in class B, such as partial Wh movement (*What do you think where we should go?* for *Where do you think we should go?*) or Wh copying (*Where do you think where we should go?* for *Where do you think we should go?*) involve the pronunciation of more material (the wh expletive, the wh copy) than the target strategy. Why are they selected under (some appropriate extension of) strategy (7)? As for the latter point, we should observe that the systematic use of grammatically determined ellipsis is by and large confined to the third year of life, when strategy (7) is primarily concerned with saving on articulatory effort, whereas the use of non-target consistent strategies of wh extraction concerns later periods, when articulation may have ceased to be a problem, while

other kinds of computational simplifications may still be relevant. In this article we will focus uniquely on parameters licensing ellipsis. See Rizzi (2005c) for a discussion of some of the other cases.

Let us briefly comment on the proviso "...and are not contradicted by positive evidence" in (7). Target-consistent parametric values clearly are not contradicted by positive evidence; but this is not the case which interests us here, as we are looking at target-inconsistencies. How can a parametric value be non-target consistent and, at the same time, not contradicted by positive evidence? The case arises when two parametric values give rise to languages which are in a subset-superset relation, the familiar domain of the Subset Principle. Consider the case of parameter P admitting values V_0 and V_1 such that language L_1 , generated by setting P at V_1 , is a superset of language L_0 , generated by fixing P at V_0 , all other things being equal. In such cases, value V_1 is not contradicted by the positive evidence available to the learner of L_0 , as the data of L_0 are consistent by definition with both parametric values. Since the learner of L_0 eventually makes the right choice (V_0), a principle is assumed, the Subset Principle, leading the learner to the conservative decision, in such situations, of choosing the value generating the smallest language (V_0 , in this case).

So our current assumptions are that strategy (7) may interfere in such cases: if value V_1 has the effect of facilitating the task of the production system (e.g., if it is an ellipsis option), the learner of L_0 is allowed by (7) to temporarily entertain the option, as it is not contradicted by the positive evidence available to him. So, strategy (7) can be seen as a temporary competitor of the Subset Principle: if a value giving rise to a subset-superset situation has a facilitating effect, it can be entertained temporarily by the learner; when (7) ceases to be operative because the performance systems have properly matured, the option is kept if supported by overt evidence, and abandoned or "delearned" otherwise, under the Subset Principle.

In conclusion, under this view the discrepancies between early and adult systems are performance-driven, as the causal factor determining the target-inconsistencies is ultimately to be found in the immaturity of the performance systems, but strictly grammar-based, in fact in a double sense. Both UG and the particular grammar impose a grammatical control on the facilitating strategies: first of all, the facilitating devices are parametric values, genuine grammatical options recruited by the LAD among those made available by UG; moreover, the LAD strategy also respects the language specific knowledge already acquired by the child, as the recruited options cannot contradict positive evidence. The first kind of grammatical control severely restricts the facilitation options allowed under (7); clearly, in this approach, it is not a grammatically wild or "anything goes" facilitating procedure that the child can adopt, as would be the case in "pure" performance-driven approaches (1) to the child-adult discrepancies. And we will see how the further limitation and control determined by particular grammatical knowledge already acquired through positive evidence is relevant in concrete cases.

5. Root Subject Drop.

Children acquiring a language which requires the overt expression of the subject typically drop subjects:

(10) English (Brown 1973; data from CHILDES, Mac Whinney & Snow 1985)

- a ___ was a green one (Eve, 1;10)
- b ___ falled in the briefcase (Eve 1;10)

(11) French (Hamann, Rizzi, Frauenfelder 1996)

___ a tout tout tout mangé (Augustin 2,0)
' ___ has all all all eaten'

(12) Danish (Hamann & Plunkett 1998)

___er ikke synd
' ___is not a pity' (Jens, 2;1)

The phenomenon has been observed to be selective and persistent throughout the third year of life. Hyams (1986), the essay which initiated the systematic use of parametric theory in the study of development, proposed that early subject drop could be analysed through the Null Subject Parameter. But data emerged which showed that the structural configurations in which Early Subject Drop was possible did not match the configurations of subject drop in Null Subject Languages. In particular, Early Subject Drop was confined to the cases in which the subject was the initial, and highest, element of the structure, a restriction which clearly does not hold in Null Subject Languages. For instance, Valian (1991) observed in her corpus of productions by 21 learners of English (1;10-2;8) that subject drop, robustly attested in initial position, was virtually unattested in post-wh environments (only 9 null subjects out of 552 non-subject Wh questions, or 1.6%, in an environment like (14)); moreover, she found no null subjects in early embedded clauses.

(14)a Where dis goes?
b (*) Where ___ goes?

Valian's observation led to the conjecture that the following generalization might be true of early subject drop:

(15) Root Subject Drop Generalization: Early Subject Drop is only possible in the Specifier of the root. (Rizzi 1992)

The validity of this conjecture was confirmed for Early French (Crisma 1992, Levow 1995), Early Dutch (Haegeman 1995, 1996a), Early German (Clahsen et al. 1995); Roeper and Rohrbaker (1994), while observing in a different corpus of Child English a high number of null post-wh subjects with uninflected verbs (*where ___ go?*, where the null subject plausibly is PRO, as is normal in uninflected structures), confirmed the virtual absence of null post-wh subjects in finite environments like (14)b, a conclusion also arrived at by Bromberg and Wexler (1995). Phillips (1995) objected that Crisma's and Levow's results on Child French could be affected by the fact that in the observed corpora wh questions overwhelmingly involve functional verbs, and functional verbs appear to disfavour null subjects in Child English; but Rasetti (2003) showed that early null subjects are clearly attested with functional verbs in early French declaratives (Rasetti 2003 observes 35.7% of null subjects with lexical verbs, 25.5% with copula, and 41.1% with auxiliaries in the corpora of Augustin, Daniel and Nathalie, see Rasetti, op. cit 160-165 for discussion), so that their virtual absence in post wh environments could not be attributed to the functional verb, and Crisma's original observation remained valid; moreover Hamann (2000) observed that subject drop, clearly inconsistent with wh movement, is attested in *wh in situ* questions in Child French roughly in the same proportion as in declaratives, which strongly suggests that the relevant factor is not clause type or verb form, but whether the subject is the initial element or not, in compliance with (15). More recently, generalisation (15) was confirmed for other languages. Josefsson (2003b:177) showed that null subjects in non-initial position are only 3.25% in the large corpus of Child Swedish productions taken into account (Sara, Harris, Markus, 1;3 – 3;1), while initial subject drop is robustly attested in Child Swedish (Josefsson 2003a). The same conclusion was reached by Santelman (2003:269).

Clearly, Null Subject Languages are different in this respect, as subject drop is possible in finite environments irrespective of the initial or non-initial character of the relevant subject position. E.g., in adult Italian subjects can be freely dropped in post-wh and embedded position:

- (16)a Dove è ___? b ___ credo che ___ sia qui
 ‘Where is (he)? ‘(I) believe that (he) is here’

And children acquiring a Null Subject Language showed an adult-like pattern from scratch in this respect. Guasti (1995) observed a robust 61% (104/171) of subject drop in post-wh environments in her Child Italian corpus (1;8 – 2;11), in sharp contrast with what is observed in early productions in English, French, etc..

The conclusion which was then reached was that the Null Subject Parameter is correctly fixed early on, as is shown by the different pattern of Child Italian and Child English in non-initial position (in other words, the Null Subject Parameter is fixed in accordance with Wexler’s VEPS, or is a class A parameter in our typology (6)). The option of dropping root subjects in accordance with (15) is then a structurally distinct property. Further questions were raised by these observations:

What is the nature root subject drop?

Why is the option entertained by the learners of Null Subject Languages in the third year of life?

Why is it abandoned later?

In previous work (Rizzi 1992, 1993/4, 2000b), I proposed an analysis couched in terms of approach (3). Adult grammars contain a principle stating that in normal circumstances the root node is CP, so that all main clauses, not only interrogatives but also declaratives, are CP’s.

(18) Root = CP

This has the consequence that the subject position, the Spec of IP, never is the Spec of the root in adult main clauses, as there always is a CP layer structurally present, in compliance with (18): so, if the option of freely dropping the subject and making it recoverable through discourse is restricted to the Spec of the root, the option is never available in adult grammars. What about children? It was suggested that perhaps principle (18) is not operative initially, so that early root clauses could be “truncated” as various levels, omitting the CP layer and, possibly, the higher layers of the inflectional system, and thus giving rise to various properties of the early systems: root null subjects, but also root infinitives, etc. When principle (18) becomes operative (“matures” in the mind), these special properties disappear.

Looking back at this proposal about a decade later, it seems to me that that the structural component of the approach, the truncation idea, remains essentially valid with provisos which will be added, but conclusive evidence has been provided against the maturational assumption connected to (18).

One important observation was that a root subject drop pattern could be observed also in early second language acquisition around the age of five (Prevost & White 2000), which seemed hardly compatible with the view that principle (18) “matures” well before in first language acquisition. A second and more straightforward challenge to the maturational assumption connected to (18) was the observation that some adult languages show root subject drop phenomena which are structurally similar or identical to early subject drop (Rizzi 2005a, and the following section). This strongly suggests that Root Subject Drop is a UG parameter, not a special and unique property of early systems. Once this kind of answer is given to question (17)1, we are back to the theoretically

familiar ground of parameter setting, and to the original logic of Hyams' (1986) approach, except that the parameter involved is not the Null Subject Parameter, but Root Subject Drop. Let us consider some of the adult evidence supporting the view that this phenomenon is a UG parameter, and then go back to questions (17)2-3.

6. Some Adult Manifestations of Root Subject Drop

Shortly before the observation of the root subject drop generalization in child language, it had been observed by Haegeman (1990) that root subjects could be dropped in special registers of languages normally disallowing the phenomenon, such as the "Diary registers" in English, French, and several other languages:

(19) Diary Registers (and other abbreviated registers) in non-NSL's:

- a A very sensible day yesterday. ___ saw noone. ___ took the bus to Southwark Bridge.
- b ___ walked along.... (Virginia Woolf, Diary, from Haegeman 1990)
- c ___ m'accompagne au Mercure, puis à la gare...
'(he) takes me to Mercure, then to the station...'
- d ___ me demande si ... je lui eus montré les notes...
'(I) ask myself if ... I would have shown him the notes'
(Paul Léautaud, Le Fléau, Journal Particulier, 1917-1930, pp. 60-70) from Haegeman (1990)

In fact, the phenomenon turned out not to be restricted to special registers explicitly connotated as written and abbreviated <FN 2>. First of all, certain colloquial varieties of English had also been described (Thrasher 1977) as permitting subject drop in initial position. Moreover, other scattered observations suggesting the possibility of a root subject drop phenomenon could be found in the comparative syntax literature. For instance, in his valuable analysis of the Null Subject Parameter across Arabic Dialects, Kenstowicz (1989) had observed that the null subject properties of a dialect should be evaluated in embedded clauses: in main clauses even non Null Subject varieties, like Levantine Arabic permitted a peculiar kind of initial subject drop:

(20) Levantine Arabic (Kenstowicz 1989):

- a ___ istarat l-fustaan
' ___ bought the dress'
- b Fariid kaal innu * ___ / ha istarat l-fustaan
'Fariid said that ___ / she bought the dress'

In retrospect, this dropping option limited to root environments looked strongly reminiscent of the child phenomenon.

As the child language literature drew more attention on root subject drop phenomena, relevant cases started popping up. First of all, the familiar Topic Drop phenomenon of (colloquial varieties of) Germanic languages, which also showed sensitivity to the root / non-root distinction, was reconsidered in the attempt of providing a partially unified analysis (see below for discussion). Moreover, other relevant cases specifically involving subjects were discovered.

De Crousaz and Shlonsky (2003) observed in the Franco-Provençal patois spoken in Gruyère a pattern of optional subject omission strongly resembling the one found in child language:

(21) Gruyère Franco-Provençal (De Crousaz & Shlonsky 2003)

- a (i) travayè pra

- ‘(s/he) works a a lot’
- b Portyè *(i) travayè?
‘Why s/he works’
- c Voué *(i) travayè
‘Today s/he works’

The subject clitic *i* is optional in initial position in main clauses, but it becomes obligatory when it is not initial because it is preceded by a *wh* element like *why* (as in (21)b), or by a topic (as in (21)c). <FN 3>

Dialectological studies offer other plausible cases of Root Subject Drop. For instance, the variety of Corsican described in Agostini (1955) (thanks to Jaume Solà for bringing these facts to my attention) permits null subjects in main declaratives (22)a, but not in subordinates (22b), sometimes with null subjects in the main clause and obligatory overt subject in the subordinate (22c), also with overt expletive subjects in subordinates (22d), and obligatorily overt subjects in main clauses in which the subject is not the first element (22e, f)

- (22)a Partu, parte, pàrtimu
‘(I) leave, (he) leaves, (we) leave’
- b Ci vole ch’è no’ pàrtimu
‘(It) is necessary that we leave’
- c Partaremu quande no’ saremu pronti
‘(We) will leave when we’ll be ready’
- d Pensu ch’ellu hà da piove
‘(I) think that it will rain’
- e Ch’ellu parti!
‘That he leave !’
- f Cum’ellu canta bè!
‘How well he sings!’

A particularly interesting case of root subject drop in adult systems is provided by the variety of Brazilian Portuguese described in Figueiredo (1996). BP by and large lost the null subject property in the course of the XX century (see below for discussion), but certain varieties retained the possibility of dropping subjects (with certain person specifications) in root environments. So, in Figueiredo’s variety, a first person pronoun can be dropped in a main declarative (23)a, but not in a main *wh*-questions nor in an embedded environment:

- (23) Brazilian Portuguese (Figueiredo 1996)
- a ___ comprei um carro ontem
‘(I) bought a car yesterday’
- b * O que que ___ comprei ontem?
‘What that (I) bought yesterday?’
- c * A Maria disse que ___ vendi o carro muito caro
‘Maria said that (I) sold the car too expensive’

In conclusion, in spite of a certain variability in the details, core cases of Root Subject Drop appear to be well attested in adult varieties/registers. They bears important similarities with other familiar phenomena found in adult languages, such as Topic Drop, which also exploit what has been called “the privilege of the root”, the option of leaving the edge of the root unpronounced, and accessible to discourse identification. This strongly calls for an analysis of early subject drop as a case of parametric discontinuity.

7. Development.

Let us leave for the next section the attempt to propose a precise formal account, and let us just assume for the time being that there is an independent parameter of UG, Root Subject Drop, which licenses a zero subject in the specifier of the root: French differs from Gruyère Franco-Provençal, etc., in that it does not allow for this option etc. When production starts, strategy (7) recruits all the parametric values which facilitate production and are not contradicted by positive evidence. RSD meets these requirements, as it permits to save on articulatory effort and other computations linked to the PHON interface by avoiding the pronunciation of certain subjects; moreover, RSD is not directly contradicted by the positive data that the learner receives, e.g. the data of adult French (taking or not taking RSD gives rise to languages in a subset-superset relation: for each French sentence with an overt initial subject, Gruyère FP allows two sentences, with overt and null subjects). So, the learner of French, standard English, etc. can legitimately entertain the option, under (7).

Around the end of the third year of life, strategy (7) ceases to be operative (so, here I maintain a maturational element, but in the Language Acquisition Device, not in the form of Universal Grammar, which remains constant in this view), and presumably this happens in concomitance with the growth of the production system. To be more precise, (7) is probably not deactivated globally at this point, as there are later kinds of target-inconsistencies which it would be desirable to analyse through the same mechanism (Rizzi 2005c). Presumably (7) is active throughout childhood, and fine-tuned to the needs of particular phases of development. So, in the third year of life the major problem may have to do with production, hence UG options permitting the saving of articulatory effort by licensing various kinds of ellipsis may be of special importance; at later points of development, articulation may cease to be a problem, but other kinds of computation may remain problematic for the child, thus justifying the recourse to other non-target consistent UG options (e.g., in the domain of A' syntax: see Rizzi 2005c for discussion based on Thornton 2004 and other work on the acquisition of wh-movement).

Anyway, limiting our attention here to the grammatically licit ellipsis options, once the relevant part of strategy (7) ceases to be operative, RSD is kept in the child grammar if the target language displays the phenomenon (say, Gruyère FP), and is abandoned otherwise. How does delearning take place? In a classical learnability paradigm, assuming the Subset Principle as a component of the Language Acquisition Device, this can be done through the Subset Principle. Within such a paradigm, (7) can be seen as a temporary competitor of the Subset Principle, making temporarily legitimate the choice of “superset” options with a facilitating effect. After (the relevant part of) strategy (7) ceases to be operative, the Subset Principle, now without a competitor, enforces the abandonment of the “superset” option, and the relevant RSD parameter is reset on the negative value.

There are alternative approaches which can be envisaged. In a system assuming the relevance of indirect negative evidence through statistical learning, the “superset” option, initially justified by (7), will eventually go away in the acquisition of French, etc., as the positive fixing of this parameter is never supported by overt evidence, and the negative fixing is invariably rewarded by experience, a situation which may lead to resetting in such systems. Our proposal is also consistent with a “grammar competition” framework like the one presented by Roeper (2000), Yang (2002), in the following form: (7) amounts to giving an initial bonus to the facilitating options, which get a head start in the competition; later the bonus is withdrawn, and the facilitating options are kept only if rewarded by experience, as any other parametric option; but the initial bonus makes them persist much longer in the competition than other options not supported by experience.

While the positive fixing of the RSD parameter is eventually delearned if not supported by experience, this and other UG options maximizing possibilities of ellipsis may remain active in registers explicitly connotated as abbreviated. So, RSD may well be a universal in the diary style and other abbreviated registers.

We should now address the question of the status of the Null Subject Parameter with respect to strategy (7). We have seen that the Null Subject Parameter belongs to class A, i.e. is fixed early in accordance with Wexler's VEPS. But why is it so? After all, the Null Subject Parameter permits a particular kind of grammatical ellipsis, subject drop, and in fact it does so in a larger set of environments than RSD, as the licensing of null subjects under the NSP is not limited to the root environment. So, why is the positive value of the NSP not recruited under (7)? This is due, we believe, to the particular mechanism involved in the NSP. It is a traditional observation, expressed in generative models by Taraldsen (1978), that the null subject in language like Italian is licensed and its content is recovered by the strong verbal inflection, expressing agreement through a well-differentiated morphological paradigm. Taraldsen's generalization has been argued to be straightforwardly contradicted by the East Asian Languages, which lack any morphological manifestation of agreement and still seem to allow subject drop; but I don't think this counterevidence is convincing, as subject drop in East Asian Languages just seem to be a particular case of a generalized argument drop device, which may affect subjects, but also direct and indirect objects, etc. (a kind of topic drop, on which see below); moreover, Taraldsen's generalisation is strongly supported by diachronic evidence (e.g. the fact that Brazilian Portuguese lost NS status in the XX century in concomitance with the weakening of the agreement paradigm of the verb: see Duarte 2000, Kato & Negrão 2000, and Nicolis 2005 for general discussion of the issue), so I will continue to assume that it is basically correct. If, under Taraldsen's generalisation, verbal morphology (a property which is available to the child from very early on: Guasti 1994, Phillips 1995, Schuetze 1997, Wexler & Harris 1996) offers a decisive cue for the positive or negative fixation of the Null Subject Parameter, the two values of the parameter don't give rise to languages in a subset-superset relation, and by inspecting at the verbal paradigms language learners always have positive evidence for the fixation of the parameter one way or the other. So, strategy (7) cannot apply in this case: for instance, the learner of French cannot assume a positive fixation of the NSP because his knowledge of the verbal paradigm directly contradicts this assumption. Strategy (7) thus is inapplicable in the case of the Null Subject Parameter, which is therefore fixed early, as a class A parameter.

8. Another case of "privilege of the root" in adult grammars: Topic Drop

I would now like to explore the possibility of giving a less rudimentary formal characterisation of the Root Subject Drop Parameter. In order to do so, it is useful to take into account another closely related parametric property, topic drop. Colloquial varieties of most Germanic V2 languages (not all, as West Flemish apparently does not: Haegeman 1996b) allow for the possibility of dropping a topic. The "pure" version of Topic Drop is found in the variety of colloquial German described in Cardinaletti (1990). In this variety, a subject can be dropped in initial (V-2) position (34a), but not in the middle field (34b-c), nor in embedded positions, in embedded V-2 or V-final clauses (34d). A topicalized object can also be dropped (34e), while an expletive subject cannot be dropped (34f-g):

(34) Topic Drop in Colloquial German (Dutch, Swedish, but not Flemish):

- a (Ich) habe es gestern gekauft
'(I) have it yesterday bought'
- b Gestern habe *(ich) es gekauft

- 'Yesterday have (I) it bought'
- c Wann hat *(er) angerufen?
'When has he telephoned?'
- d Hans glaubt *(ich) habe es gestern gekauft
'Hans believes I have it yesterday bought'
- e (Das) habe ich t gestern gekauft
'(This) have I yesterday bought'
- f *(Es) wurde viel getanzt
'(It) was a lot danced'
- g *(Es) hat viel geregnet
'(It) has a lot rained'

Topic Drop shares with RSD the “privilege of the root”, as it is not possible in non-initial contexts; it is a clearly distinct phenomenon, though: as it involves the initial position in a V-2 construction it is a property of a left-peripheral position, in the CP system; moreover it cannot affect expletives (at least in the variety under consideration), and it may affect non-subject topics. Suppose we capture the common core of Topic Drop and Root Subject Drop through the following statement, which will be later derived from more general principles of Phase Theory:

(35) The Spec of the Root can be left unpronounced

but how can we express the relevant parametrisation? The obligatory presence vs optional absence of the CP layer is clearly insufficient here: Topic Drop, in the variety illustrated by (34) takes place in structures which include a CP layer, as V-2 shows, so that the presence vs. absence of CP cannot be a sufficient basis for distinguishing Topic Drop and non-Topic Drop languages. Here the structural enrichment introduced by the cartographic approach becomes crucial.

9. Truncation options as parametric choices.

The traditional theory of the C system involves a single head and projection, but clearly more structure is involved, as the multiplicity of left peripheral material suggests. Consider, for instance, finite embedded clauses in Italian in which a topic (in fact, a string of topics) and a contrastively focussed element can occur between the highest C position *that* and the subject position, expressing the left edge of the IP:

(36) Credo che, a Gianni, QUESTO il direttore avrebbe dovuto dirgli
'I believe that to Gianni (Top) THIS (Foc) the director should have told him'

The left peripheral material follows high complementizers like *che* (that), but precedes infinitival prepositional complementizers like *di* (of):

(37) Credo, a Gianni, di dovergli dire questo
'I believe, to Gianni, to have to tell him this'

these distributional facts support the view of a complementizer system delimited by high and low C heads, which define a space which can host topic and focus and other left-peripheral material. In the system of Rizzi (1997, 2004) the delimiting heads are Force (declarative, interrogative, imperative,...) and Fin(iteness) (there are other positions, such as a lower topic position, a position for preposed adverbs, etc., which are not relevant for the present discussion):

(38) Force ... Top* ... Foc ... Fin IP (Rizzi 1997, 2004b)

The topic and focus positions are in turn defined by dedicated heads, whose Spec's receive Topic and Focus interpretation. This is a part of the detailed structural map of clausal structure which is emerging from cartographic studies (Belletti ed. 2004, Cinque 1999, ed. 2002, Rizzi ed. 2004a), and which I will be following here.

Assuming that as background, I would like to put forth the following hypothesis of parametrisation:

(39) Languages can vary in the choice of categories that can be taken as the root. Force is universally a root category; other layers can be taken as roots by specific languages.

So, the clausal structure is defined by a universal hierarchy of functional heads, which is being charted in cartographic studies. According to (39), different languages can “start” a root clause at different points of the universal hierarchy (in fact, in terms of the standard bottom-up derivational procedure, the derivation of a root clause can terminate at different points of the hierarchy), “truncating” the higher portion of the hierarchy:

(40)

Force	Top	Foc	Fin ...	AgrS ...	T
I	II	III	IV	V	VI	VII
All	Topic Drop	?	?	RSD	?	?
Lgs	Lgs			Lgs		

Let us comment on the properties of the different cutting points that this model leads us to expect, and on the attested cases corresponding to each major truncation point, both in adult languages and in development.

I: Force is universally available as a cutting point: the unmarked root clause is a Force Phrase. If the “privilege of the root” does not simply involve the specifier but also the head of a category (hence its edge, in phase theoretic terms, on which see below), we expect that the root declarative force marker will be generally null (if the option of a zero realization is preferentially taken when possible), in sharp contrast with embedded force markers which are normally expressed (except for language specific C-deletion rules):

- (41)a (*Que) Pierre croit *(que) Jean viendra
 b (*That) Peter believes (that) John will come

To a lesser extent, also interrogative markers show similar asymmetries. For instance, Lasnik & Saito (1992) point out that in Japanese the interrogative marker *ka* is obligatory in embedded questions and optional in main questions:

- (42)a John-wa doko-ni ikimasita (ka)
 ‘John-Top where-to went Q’
 b Mary-ga [John-ga nani-o katta ka] siritagatte iru koto
 ‘Mary-Nom John-Nom what-Acc bought Q want-to-know fact’

The fact that the root declarative marker is normally null (but rare cases of overt declarative markers are reported in the literature) while the interrogative marker is at least optionally expressible may be due to the fact that declarative is the unmarked force marking, and null realization of an unmarked specification is normally taken, if structurally possible. Alternatively, the optional expression of the interrogative marker could be related to the fact that the interrogative force marker may be expressed on a lower head position (Int, in the system of Rizzi 2001) than the declarative force marker. Direct evidence supporting this conclusion is provided by the complementizer order *que si* (that if) in certain Spanish indirect questions (see Rizzi 2001 for other types of evidence and discussion)

- (43)a Maria decia / preguntaba que si no debiéramos dejarlas en paz
 ‘Maria was saying /asking that if we shouldn’t leave them in peace’
 Plann (1982:300)
- b Me preguntaron (que) si tus amigos ya te visitaron en Granada
 ‘They asked me that if your friends had already visited you in Granada’
 Suner (1994:349)

So, if the cartographic order is Decl Force – Int, the declarative complementizer always is in the edge of the root, whereas the interrogative complementizer may or may not be, depending on whether the language takes the truncation option at Int (in between I and II in (40)); this could structurally explain the asymmetry between the two types of complementizers. <FN 4>

II: The cut at the TopP structure corresponds in this system to “Pure” Topic Drop languages. The dropping of subject and object topics follows, whereas expletives cannot be dropped, as they can never fill a Top position, which is restricted to referential elements familiar from context (Rizzi 2005b).

III. The cut at FocP would be a case permitting null focus. This option may be generally excluded due to the special intonational prominence usually associated to focus, which requires segmental material to be expressed.

Nevertheless, there may be cases of “privilege of the root” associated to this position. Spec Foc is the position typically used as the landing site of wh questions, as the incompatibility between wh movement and left-peripheral Focus in any order (44b-c) suggests ((44a) shows that wh is compatible with a preceding topic in Italian):

- (44)a A Gianni, che cosa gli hai detto?
 ‘To Gianni (Top), what did you say to him?’
- b * A GIANNI che cosa hai detto (non a Piero)?
 ‘To GIANNI what did you say (not to Piero)?’
- c * Che cosa A GIANNI hai detto (non a Piero)?
 ‘What to GIANNI did you say (not to Piero)?’

And wh elements don’t need intonational prominence: they may sometimes be clitic-like elements, as French *que* (Obenauer 1977). So, case III of truncation could correspond to systems allowing null wh operators. This is certainly not a common phenomenon in adult languages, but it has been reported to exist at least in American Sign Language (Petronio and Lillo-Martin 1997). On the other hand, wh drop is a widespread phenomenon in child language:

(45) Swedish (Santelmann 2003)

a ___ sa du ? (Embla, 2 ;3)
said you
'(What) did you say ?'

b ___ kan de inte komma in (Ask, 2;3)
can it not come in
'(Why) can it not come in?'

(46) Dutch (van Kampen 1997)

a ___ heb dat daan nou? (Sarah, 2;4)
has that done then
'(Who) has done that then?'

b ___ lag mijin lepel nou) (Laura, 3;6)
lied my spoon then
'(Where) was my spoon?'

The phenomenon is not negligible: in her corpus of Child Swedish (5 children followed longitudinally in their third year of life (1;11 – 3;0)), Santelmann (2003) observed 155 wh-less questions out of 809 (19%), with individual variation ranging from 8% to 36%. Santelman also observed development (with MLU < 3, wh drop is 26%, with MLU >3, it is 13%), and the disappearance of the phenomenon in the fourth year.

Wh Drop was also observed in Child French, Child German and Child English. Of particular significance is the comparative study of Yamakoshi (2001), in which wh questions were elicited from English and Japanese children; 2 year old learners of English produced 42 questions with overt wh and 9 questions with dropped wh (17.6%). 2 year old Japanese learners produced 117 questions with overt wh and only 4 questions with dropped wh (3.3%). The asymmetry is expected under a truncation approach to wh drop, as Japanese is a wh in situ language, in which the wh element is not moved to the left periphery, and therefore it cannot benefit from the "privilege of the root". Moreover, in three of the 4 elicited questions with wh drop in Japanese, the dropped wh was a reason adverbial glossed with *why* (*nande*, *doushite*, *naze*), of the kind that has been argued to be base-generated in the left periphery in other languages (Rizzi 2001), an analysis possibly extendable to Japanese (and Korean: Ko 2004), the fourth case being the dropping of *itsu* (when). A corpus study by the same author has confirmed the absence of wh drop in Child Japanese.

IV. This could be the case of a V-2 language also allowing for cases of expletive subject drop, not amenable to Topic Drop. Suppose that the V-2 property is to be expressed as the fact that Fin attracts the inflected verb (as would be expected if we combine a theory of V-2 like Koster's (2003), based on Den Besten's (1977/1983) classical approach, and the cartography of the left periphery), and may attract any constituent to its Spec position, so that just one constituent can escape from the IP through the Spec-Fin "escape hatch" (any other constituent movement across this position would violate Relativized Minimality, hence the FinP creates a bottleneck, as it were, through which only one phrasal constituent can move). Apart from that, the left periphery in V-2 languages is as in any other language, with distinct positions for Top, Foc, etc., except that just one element can be moved out of the IP. An expletive subject, which is neither topic nor focus, presumably just moves to Spec Fin to satisfy V-2, and stops there (or perhaps moves locally to an A position adjacent to Fin in the C system: that the C system may specify A positions is argued for,

e.g., by Poletto (2000), Schoorlemmer (2004)). The possibility of truncation at Fin (or at the adjacent A position) may be the case of colloquial Swedish, a V-2 language which seems to normally permit expletive drop on a par with topic drop:

- (47) a. (Det) verkar som om...
 ‘It seems as if...’
 b. (Det) telefonerades mycket igaar
 ‘It was telephoned a lot yesterday’
 c. Igaar telefonerades *(det) mycket
 ‘Yesterday was telephoned it a lot’

So, Colloquial Swedish would differ from the variety of Colloquial German represented by (34) in that it would allow truncation at two sites: TopP and FinP (or the immediately superordinate layer with an A Spec). <FN 5>

V. This is the case of Root Subject Drop languages/registers, and of Root Subject Drop in child systems. <FN 6>

VI. If we follow Chomsky (1995, ch. 4) in assuming that Phi features corresponding to subject agreement are associated to the T head, this case of truncation is not expected to exist. I am not aware of clear cases in adult languages supporting a truncation separating Agr and T. But some child data may be relevant. In their study based on a corpus of Child Swahili (4 children 1;8 – 3;1), Ud Deen & Hyams (2001) observe that, in a language which clearly separates morphological slots of AgrS and T, while omission of AgrS in a structure in which T is present is robustly attested throughout the corpus (one can determine from their table (21) that AgrS is globally dropped in 36% of the cases, with percentages of omission in the four periods taken into account as follows: I: 29%, II: 52%, III: 36%, IV: 28%), omission of T in a structure in which AgrS and V are expressed, while being clearly attested in the early files, is globally reduced in the whole corpus (8% globally, with percentages in the four periods as follows: I:20%, II:8%, III:5%, IV:7%). While the occurrence of AgrS – 0 – V is not expected under our truncation assumptions, the strong asymmetry between 0 – T – V (36%) and AgrS – 0 – V (8%) is suggestive of the possibility of truncating the structure in between AgrS and T (an ATOM type model of Schuetze & Wexler 1997 would correctly expect both types of omission structures to occur, but would need an auxiliary assumption to explain the quantitative asymmetry between them).

VII. A truncation lower than T, possibly at Asp or other lower functional heads, could give rise to the special root infinitival constructions in adult languages, for instance the Russian construction discussed by Avrutin (1998) in which the infinitival verb indicates the beginning of an action that follows immediately some event assumed to be known (see also Lasser (1997) on German), and of Root Infinitives in child systems:

- (48) a Carevna xoxotat’
 ‘Princess to laugh = right after something funny happened, the Princess started to laugh’
 b Zriteli aplodirovat’
 ‘Spectators to applaud = the spectators started to applaud after something exciting was done’

An important property of Child RI is that the construction is virtually not found in some early languages like Child Italian (Guasti 1993/4). This may be immediately derived from truncation (Rizzi 1993/4) through the independently motivated assumption that infinitive verbs must jump to a high structural position in the inflectional space in Italian (Belletti 1990), so that they are inconsistent with a structure truncated under T. <FN 7>

Lower truncation sites may also be envisaged, as in root participial clauses, or clauses with bare nominal-adjectival predicates. Franchi (2004) has shown that copula drop, another phenomenon usually associated to the RI phenomenology, is robustly attested in Child Italian. Why is it so? This may be an instance of lower truncation. When the thematic predicate is not verbal, but nominal or adjectival, truncation can cut as deeply as at the functional VP level headed by the copula, so that only the subject and the nominal-adjectival predicate remain in the structure. This is expected to be possible both in English and Italian type languages (on the other hand, predicates with lexical verbs can't undergo truncation leading to root infinitives in Italian because the lexical V can't be truncated -- otherwise there would be no argument structure at all --, and if present and in the infinitival form it must raise to the high part of the inflectional structure. Franchi makes the interesting observation that in the CHILDES corpus she studied (Martina 1;7 – 2;7, Raffaello 1;7 – 2;11, Rosa 1;7 – 3;3) copula drop in declaratives is well attested (235/692, or 34%), while it is virtually absent in wh questions (2/419, or 0.5%). So, she observes the following pattern:

(49)Child Italian:

Questo (è) bello
 'This (is) beautiful'

Questo (è) Paolo
 'This (is) Paolo'

c Cosa *(è) questo? Chi *(è) questo?
 'What (is) this? Who (is) this?'

This strong asymmetry is expected under the truncation approach to copula drop, Franchi observes, as the wh question requires projecting the structure up to the left periphery to integrate the wh element, hence it is incompatible with a truncation in the lower IP domain. <FN 8>

10. The Privilege of the Root and Phase Theory.

What is the nature of the “privilege of the root”, the possibility of leaving the specifier of the root (and perhaps the edge of the root) unpronounced? Rizzi (1992) and subsequent work offered an approach based on the following idea: null elements need a clause internal identifier, but the requirement applies only if it is virtually satisfiable; the Spec of the root, which is not c-commanded by any category, and therefore does not have any potential identifier, is exempted from the requirement of clause-internal identification, and accessible to identification in discourse.

Phase theory now offers a natural alternative to this approach. According to phase theory, the result of the syntactic computation (external and internal merge) is cyclically transferred to the interfaces PHON(etics) and SEM(antics) when a category constituting a phase (CP and vP) is formed. More specifically, the transfer to PHON, or spell-out, takes place in accordance with the following spell-out principle (Chomsky 2001, Nissenbaum 2000):

(50) As soon as a phase category is formed (CP, vP), send the complement of the phase head (C, v) to spell-out.

The fact that only the complement of the phase head is sent to spell-out is what makes successive-cyclic extraction possible from a phase. E.g., what makes extraction of *which book* possible in (51)b is the fact that only the complement of C, italicized in (51)a, is sent to spell-out at the end of the CP phase, with the wh element in the phase Spec available to further syntactic computation:

- (51)a You think [_{CP} which book C [*we should read t*]] →
 b Which book do you think we should read?

If the whole structure headed by a phase head were cyclically sent to spell-out, it would be cleared from narrow syntax, and frozen. So, principle (50), as stated, makes successive cyclic movement possible.

But the Spell-out principle also has the consequence that the edge of the root phase is not sent to Spell-out at all: once the root CP is formed, its complement, the IP, is sent to spell-out according to (50), not its edge. This has the immediate positive consequence that main clause complementizers (at least declarative complementizers) are normally not pronounced, while embedded complementizers may be obligatory or optional, depending on language-specific rules, as discussed in the preceding section (see (41)).

But what about the fact that *wh* elements are generally pronounced in root questions? And that in many languages topics must be overt? If we adopt a structure of the left periphery admitting a single CP layer, some special device is needed to send to Spell-out the root C-system.

Nissenbaum (2000:187) addresses this problem by introducing an auxiliary assumption according to which the root of the structure is always marked by a special head [+R], and the following applies:

- (52) “Send to Spell-out the complement of [+R] (= Root)”

This deals with the problem of the overtness of typical fillers of the Spec of the root CP such as *wh* elements, but loses the result on (41), which still requires a special clause for root declarative C.

Things change if we combine cartography and phase theory. Under the cartographic approach to the C system illustrated in the previous section, the natural phase head is Force, which defines the higher limit of the C space (and then the “escape hatch” for extraction from an embedded clause as in (51) is Spec Force). Then, assumption (52) is not needed: the complement of the highest Force marker is sent to spell-out according to (50), hence, topics, foci, etc., are normally pronounced, as they sit in Spec’s lower than Force. The fact that the root declarative force marker is normally not pronounced is also automatically captured under (50), as it is part of the phase edge (the Force head and its Spec), not of the complement.

We can now express the parametrisation introduced in the preceding section within the phase-based theory. A natural approach seems to be to assume that languages may vary in a limited fashion in the inventory of the categories which count as root phases, i.e., the categories at which the syntactic computation can stop. Force presumably has the status of possible root phase universally, i.e. all languages have at least the option (and many have the obligation) of computing root clauses up to the Force Phrase; then, in the terms of the preceding section, one may think of Topic Drop languages as languages which have the additional option of stopping the computation at the TopP, hence in which Top may count as root phase head, and so on. Borrowing the [+R] notation from Nissenbaum (2000) (but with [+R] intended now as a feature designating the root phase head, which may be parametrically associated to other functional heads, rather than defining an autonomous functional head), we could express the relevant family of parameters as follows:

- (53) [+R] categories are:
 Force (universally)
 Top (Topic Drop Languages)

- Foc (Wh Drop Languages?)
- Fin (or an A position immediately higher than Fin, in root expletive V-2 languages)
- AgrS (or Subj, in Root Subject Drop Languages)
-
- under T, possibly at Asp (languages/registers permitting root infinitives)
-

Some of these “truncation” options clearly are made available by UG, as there are adult languages manifesting them, and perhaps all the options of (53) represent genuine UG parameters. <FN 9> So, in accordance with strategy (7), the language learner initially assumes them all to hold, thus simplifying the task of the production system in a grammar-based manner <FN 10>. The facilitating options are later abandoned by the child if they are not supported by positive evidence in the target language, in the way we have discussed in section 7, and kept in the adult grammar otherwise.

Footnotes

1. The generality of this finding has recently been challenged by Yang (2002: 105-109) on the basis of the observation of a very large number of target-inconsistent V-1 patterns in the acquisition of Dutch (with data drawn from Haegeman’s 1995 analysis of Hein’s productions); but clearly, whatever the right analysis of the phrasal movement component in V-2 may turn out to be (delay of the phrasal component, or systematic use of Topic Drop), the head movement component, or the necessity of moving the inflected verb to a position higher than the subject position, seems to be determined by the learner very early on, in compliance with Poeppel & Wexler’s analysis of Early German.
2. Haegeman & Ihsane (1997) observed a more liberal English diary register, admitting subject omission also in non initial position. This is not surprising, as there are many kinds of reduced registers (headlinese, recipe style, telegraphic style, etc.), culturally determined systems somehow superimposed and parasitic on full-fledged natural languages, and manifesting different degrees of freedom in structurally determined omission options, so that it’s entirely natural to expect variants within a particular abbreviated genre. What is more surprising, I believe, is the remarkable cross-linguistic invariance that Haegeman originally observed in diary styles across languages.
3. In De Crousaz & Shlonsky’s analysis the subject DP position is null in all the grammatical variants of (21). They argue that the subject clitic is not a DP but an inflectional head (much as in Northern Italian Dialects: Rizzi 1986) which licences a null subject *pro*. So, the null subject can be licensed by *i* or qua Spec of the Root in (21)a, but only the former option is available in b, c, so that *i* becomes obligatory there. This assumption allows De Crousaz and Shlonsky to account for certain differences with the child pattern. First of all, *i* is omitted in embedded subject position, a fact that they account for by assuming that in this case *pro* is licensed by C; moreover, *i* can be omitted after *wh* elements distinct from *why* (and *when*), such as *where* and *how*, a fact that could be accounted for by assuming that such *wh* elements are typically moved to Foc, another potential licenser of *pro*, while higher *wh* adverbials are generated in the higher position of Spec Int (Rizzi 2001), possibly a position too high in the structure to be able to license *pro* in subject position.
4. Hans Broekhuis reminded me that Dutch permits the opposite order of *dat* (if that). I don’t think this illustrates a possible parametrisation in the ordering of left peripheral heads; rather, it should be related to the fact that elements like the unmarked finite complementizer *that* show a certain versatility across languages, often filling other head positions than Decl Force. For instance, an

occurrence of *que* can optionally overtly express the Foc head in Brazilian Portuguese (Mioto 1999), where it can cooccur with declarative *que* in a fixed order, etc:

- (i) A Joana acha que A MARIA (que) o João encontrou no cinema (Mioto 1999)
'Joana thinks that MARIA João met in the cinema'

The occurrence of *dat* in Dutch *of dat* sequences may thus express a lower head of the C-system, possibly Fin.

5. About option of truncation at FinP, the question arises of why the lexical verb in Fin is not also elided, as it would be in the edge of the root. We may adopt a suggestion made by Richard Kayne in a different context (class lectures at the 2005 LSA Institute, MIT, July 2005) that lexical material cannot undergo this kind of ellipsis. This would still leave open the possibility of eliding a functional verb, an auxiliary, in this environment. Alternatively, if the expletive in (47) does not sit in Spec Fin but in the A Spec of a higher functional projection (say, an Agr projection in C), the inflected verb, stopping at Fin, would not be in the edge of the root, and the issue would not arise.

6. Here too, if we want to extend the "privilege of the root" to the whole edge (Spec and head) of the root category, not just to the Spec, we must account for the fact that the inflected verb is normally not null. We may again, as in the case of truncation site IV, assume that the privilege of the root is restricted to non-lexical elements (which would leave the possibility open of a null functional verb in this environment); or assume that the subject normally ends up in a position higher than the position which attracts the inflected verb, say the Spec of the Subj head postulated in Cardinaletti (2004), Rizzi (2003), a position distinct from and immediately higher than AgrS.

7. Wexler (1998) proposes an analysis of the lack of root infinitives in early languages like Child Italian, based on the Unique Checking Constraint, which directly relates the observed absence to the fact that Italian is a Null Subject Language. My (1993/94) analysis may also link the absence of RI to the Null Subject Parameter, but in a more indirect way, if indeed it is the case that NSL's tend to raise infinitival verbs to AgrS (Belletti 1990). The question whether the crucial factor is directly the NSP or the high position of infinitives in the structural configuration could be adjudicated by a NSL which keeps infinitive verbs in a position lower than finite verbs (and anyway, lower than T). The truncation approach would lead us to expect root infinitives to be possible in the corresponding child language, while the UCC approach would predict absence of root infinitives in this case. One more general comment is in order here. I do not think that the UCC and truncation should be considered alternative approaches in general: they are clearly distinct, both in their conceptual and formal properties and in their global empirical coverage, and they both express natural constraints on structures and computations. I think it is perfectly conceivable that they may both be on the right track in their respective domains. So, while it makes perfect sense to compare their predictions in specific cases, like the one we just mentioned, such local comparisons should not necessarily be intended, in my opinion, to choose between them as global options, but rather to define the natural division of labour between the two approaches.

8. Franchi also showed that the observed effect is not an artifact of the later character of wh questions wrt declaratives: she looked at development dividing the corpora into two stages: in stage I she found 4% (2/49) post wh copular drop, while copular drop in declaratives ranged from 81% to 49%, and in stage II there was no post wh copular drop (0/368) while copular drop in declaratives still ranged from 26% to 17%.

9. It is conceivable that deeper truncation options are globally more costly than more shallow ones, as a deeper truncation simplifies the narrow syntactic representation at the price of enhancing the

role of the interface systems, which must “reconstruct” the specifications which are structurally missing. So one may expect deeper truncation options to be more marked (rare) across adult languages than more shallow options. One may also expect deeper truncation options to be abandoned earlier in development. In fact, in cases in which a temporal mismatch is found between the loss of root infinitives and the loss of root null subjects in tensed clauses, the mismatch seems to be systematically in the sense that root infinitives disappear earlier than root null subjects (Rasetti 2003), as would be expected under the current cost (markedness) assumptions.

10. Does every child language go through a Topic Drop stage? The standard answer is no: asymmetries between subject and object drop, e.g. in child English, are interpreted in this way. Nevertheless, there are some cases of obligatory object drop in Child English: e.g., Bloom 1990 found 55% subject drop vs 9% drop of obligatory objects. The latter could be just “noise”, or could reflect topic drop in object topicalisation structures, possibly reflecting the rarity of object topicalization in (child) English.

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