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# Children's Grammatical Conservatism: Implications for Syntactic Theory

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## 1. Grammatical Conservatism (GC)

My central claim will probably come as a surprise to most parents, and even to many acquisitionists: In day-to-day life, when children put together words (and smaller morphemes) to create an utterance, the vast majority of what they do is grammatically correct for their target language. While children do make errors, the mistakes in their syntax and morphology are overwhelmingly errors of omission, not "co-mission." Moreover, the types of co-mission errors that do occur are a tiny subset of the logical possibilities.

The impression that children's speech is filled with co-mission errors is probably due to a natural sampling bias: Errors are extremely salient when they occur, and grammatically well-formed phrases are not. Only when we perform quantitative analyses on spontaneous-speech samples (cf. MacWhinney 2000) do we realize that the attention-grabbing errors are the exceptions, found in a very small fraction of the utterances where they could have occurred.

I should hasten to add that I am not the first to make this claim. Michael Maratsos, for one, has argued for much the same point under the rubric of "underground acquisition" (Maratsos 1998). When he examined the spontaneous speech of children acquiring a richly inflected language like Turkish, Georgian, or Polish, he almost never encountered a verb that was inflected for the wrong person or number. In the vast majority of cases, either the child omitted the inflectional morphology, or she produced a correctly inflected form. Thus the child appeared to have worked "underground," quietly solving the puzzle of how the adult system worked, before she ventured to employ it in her own speech.

Note that this pattern of 'omission, not co-mission' is limited to spontaneous speech. In the context of an elicited-production study, where the meaning is set by the investigator, and where the task requires the child to express that specific meaning as best she can, errors of co-mission are rampant. In a naturalistic setting, however, when the child is not sure of how to express a

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given meaning correctly, she has the option of omitting those portions of the structure about which she feels uncertain, or of using a circumlocution, or of simply changing the topic. In other words, the child can restrict herself to portions of the target language that she is certain of. My claim is that when children have this option, they usually take it.

Even if the pattern is restricted to spontaneous speech, I believe it is critically important for the field of language acquisition. One of its implications, I will argue, is that the child is "Grammatically Conservative."

(1) **Grammatical Conservatism (GC):** Children do not make productive, spontaneous use of a new syntactic structure until they have both determined that the structure is permitted in the adult language, and identified the adults' grammatical basis for it.

My argument, in brief, will be that anything short of GC would predict co-mission errors where we do not find them. Moreover, I will argue that GC has dramatic implications for the nature of what the child is acquiring, as well as the process by which it is acquired. Many – perhaps most – of the conceivable "architectures" for the human language faculty that are otherwise plausible, would make GC impossible.

The plan for the remainder of this paper is as follows. Section 2 surveys the evidence for 'omission, not co-mission'. Section 3 presents a number of interim conclusions, and considers the possibility of accounting for the data in Section 2 not by means of GC, but by "superficial conservatism" – that is, by the child limiting herself to utterances very close to the forms she has encountered in the input. Section 4 reviews my work on "The Compounding Parameter" (TCP; Snyder 1995, 2002), in order to provide strong evidence that the child is *not* superficially conservative. In the case of TCP, the point of grammar that is acquired must be abstract, and much more general than any particular surface construction, because it has simultaneous consequences for superficially unrelated constructions. Section 5 turns to the issue of what GC entails for syntactic theory – that is, what models of syntactic knowledge can accommodate it. Section 6 concludes the paper.

## 2. Scarcity of Co-mission Errors

### 2.1. English Verb-Particle constructions

In (Snyder 2007, Chapter 4) I considered the question of what it looks like exactly, when the child acquires a new point of grammatical knowledge. This section reviews a small study that I ran in order to provide a concrete answer. For present purposes I will focus on the types of errors that we find, and their frequency, as a new grammatical construction enters the child's repertoire.

As a case-study I chose the English verb-particle construction, illustrated in (2).

(2) Mary stood up / lifted the box up / lifted it up / lifted up the box.

Particles are used routinely in English, and are frequent in both child-directed speech and the speech of children themselves, once acquired.

Yet from a cross-linguistic perspective, the English verb-particle construction is exotic: Most of the world's languages have nothing of the sort. In the modern Indo-European languages, for example, directional particles of the kind we see in English are largely (if not entirely) restricted to the Germanic branch. Hence, for the child learning English, there is clearly some type of grammatical information that has to be acquired.

To examine how the verb-particle construction enters the speech of a child acquiring English, I performed a fine-grained case-study on the child Sarah (Brown 1973, MacWhinney 2000). An important question to address was error patterns, and I began by asking what the logically possible error-types are.

Suppose, for example, that a child is reasoning by analogy from the examples in (3a). Producing the ungrammatical form in (3b) is a likely consequence.

(3) a. lifted the box up / lifted up the box.
b. lifted it up / * lifted up it

Another possibility is the error in (4).

(4) * Mary lifted up the box out.

This error is expected if the child sees that a particle can appear either before or after the direct object, and postulates a grammar in which the two positions can be used simultaneously.

Alternatively, suppose that the child is endowed with UG, and restricts her hypotheses to grammars that are UG-compatible. In this case the child might, at least temporarily, have a grammar permitting verb-particle constructions that are well-formed in languages like German and Dutch, though they happen to be unavailable in present-day English. An example is given in (5a), which corresponds directly to its German counterpart in (5b).

(5) a. * Mary has the box up-lifted.
b. Marie hat den Kasten auf-gehoben.

Thus, the English verb-particle construction provides a wide range of tempting

co-mission errors, for any learner who is susceptible to such errors.

In my case study I chose Sarah's corpus because, at the time of writing, in July 2004, it was the CHILDES corpus with the smallest average gap between recordings (7.4 days), and because it included a substantial period when the child was not yet combining verbs with particles. I then performed a computer-based search for all utterances containing any word that is a particle in adult English, or is semantically similar to the particles of adult English (e.g. *there*), or could plausibly be the transcriber's reaction to a word with a particle affixed to it (e.g. *backbend*). All matching utterances were then coded by hand. The principal results are depicted graphically in Figures 1 and 2.

The key point is that errors of co-mission were vanishingly rare. From the beginning of her corpus at 2;03 (27 months) through age 2;10 (34 months), Sarah produced 102 examples of verb-particle constructions, of which 32 contained an error. Yet, at least 29 of these errors (90.6%) were errors of omission. Of the other three, only one (<3%) was a clear-cut grammatical error:

(6) I [...] go down+ed . [Transcript 34, line 569, age 2;10,20]

Thus, Sarah made a rapid transition from never using the verb-particle construction, to using it in an adult-like fashion, with extremely few errors of co-mission. This is precisely what we expect, if the learner is grammatically conservative.

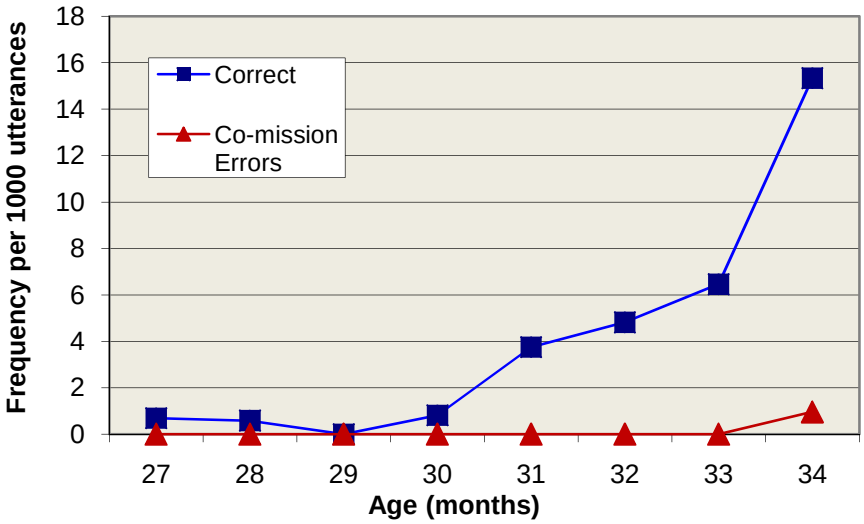



Figure 1. Sarah's intransitive particle constructions.

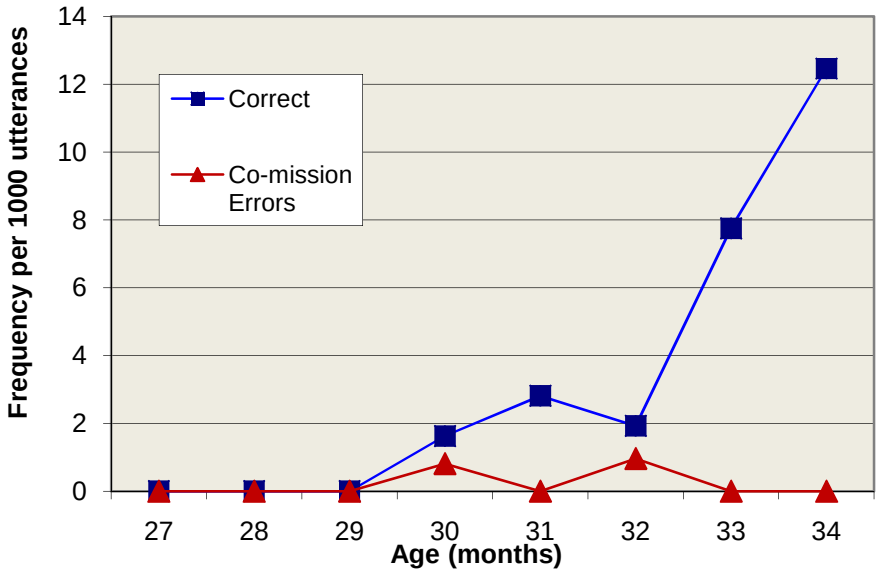



Figure 2. Sarah's transitive particle constructions.

**2.2. Other studies searching for co-mission errors**

In recent years the frequency of co-mission errors has been checked by many more researchers, looking at a whole range of languages and grammatical constructions. In this section I will briefly summarize a number of the studies. As we will see, the finding is always the same. Errors of co-mission are rare.

For example, Rodríguez-Mondoñedo (2008) examined differential object marking (DOM) in the spontaneous speech of two-year-olds acquiring Spanish. As illustrated in (7), the rules for DOM are complex and subtle. In (7a), where the object is inanimate, the object-marker (the preposition-like element *a*) is disallowed. In (7b) it is required, if one is looking for a specific teacher, but disallowed otherwise.

(7) a. Buscamos (*a) una clase.
look.for-1pl.Pres (DOM) a class
'We're looking for a class.'

b. Buscamos (a) una profesora.
look.for-1pl.Pres (DOM) a teacher-Fem
'We're looking for a teacher.' [DOM ↔ specific]

c. No buscamos *(a) nadie.
not look.for-1pl.Pres (DOM) nobody
'We aren't looking for anyone.'

On the basis of examples like (7a) and (7b), a learner might think the marker indicates animacy and specificity. Yet, (7c) shows that this is too simple. The negative quantifier *nadie* 'nobody' cannot possibly refer to a specific individual, and here the marker is obligatory.

Adults learning Spanish as a foreign language routinely make errors with DOM, and child learners could certainly be forgiven if they did too. Yet, Rodríguez-Mondoñedo found that "children do not use the A-marker when they should not, and in addition, they do not fail to use it when they should." (p.138) Thus, when children acquiring Spanish first begin to use DOM, they are already using it correctly. Once again, this is precisely what we expect, if children are grammatically conservative.

In another study, Westergaard (2009) examined word order in the spontaneous speech of three children (1:09-2;11) acquiring the Tromsø dialect of Norwegian. This dialect has V2 word order in matrix clauses, except in the environments illustrated in (8). (All examples are from Westergaard 2009:2.)

(8) a. Kor rart han snakke!
how strange he speaks
How strangely he speaks!

b. Kanskje vi skal snakke engelsk.
maybe we shall speak English
'Maybe we should speak English.'

c. Ka du sir?
what you say
'What did you say?'

Specifically, the V2 requirement is waived, in Tromsø Norwegian, when the sentence is an exclamative (8a); or when the initial element is the word *kanskje* 'maybe' (8b); or in a *wh*-question, but only if the *wh*-word is monosyllabic and the subject is considered discourse-given information (8c).

Remarkably, Westergaard found that "most of the children's non-target-consistent production constitutes errors of omission rather than commission ..." (p.2). "In all cases ... the children have the target-consistent word order in place as soon as relevant utterances appear in the child data ..." (p.183). Thus, precisely as expected under GC, children acquiring Tromsø Norwegian appear to master these points of word order *before* they begin using the relevant types of utterances productively in their spontaneous speech.

Returning to Spanish, Villa-García (2008) examined the use of overt subjects in the spontaneous speech of one- and two-year-olds. To a first approximation, the use of overt subjects in Spanish is simply optional, but in reality the situation is more complex.

(9) a. Nunca (*Pedro) fue (Pedro) a Londres (Pedro).
never (Peter) go-3SgPret (Peter) to London (Peter)
'Peter has never been to London.'

b. Qué (*tú) compraste?
what (you) buy-2SgPret
'What did you buy?'

As illustrated in (9), Spanish actually prohibits the use of an overt subject in certain environments, and the rules are fairly subtle. Yet, Villa-García (p.51) reports that "we did not find *one* single error regarding subject placement... nor did we find any pragmatic oddities regarding aspects such as information structure either in the transcripts or in the videotapes analyzed." Note that production of an overt subject where one is disallowed would be a clear-cut error of co-mission. The absence of this error supports GC.

In another study, Tieu (2010) examined negative polarity items (NPI's) in the spontaneous speech of children acquiring English. As illustrated in (10), the availability of an NPI like English *any* depends on highly abstract semantic characteristics of the environment.

(10) a. * (Only) Sue has any cookies.
b. Does Sue have any cookies?

In a declarative statement like (10a), *any* is possible if, and only if, its environment is downward entailing (DE). When the subject of the sentence includes the quantificational element *only*, the predicate becomes DE, and the NPI becomes possible. On the other hand, when the sentence is a polar question, *any* can occur even in a non-DE environment, as it does in (10b).

Tieu asked whether GC applies even to phenomena at the syntax-semantics interface, like the distribution of NPI's. Note that NPI's do not all work the same way, either across languages or within a single language. The child is therefore required both to learn that the lexical item *any* is an NPI, and to learn which type of NPI it is. If the child relaxed GC for points of grammar at the syntax-semantics interface, and did not insist on identifying the precise semantic class to which *any* belongs before she began producing it, errors of co-mission would be tough to avoid. Yet, Tieu (p.19) reports that "[t]he mean [co-mission] error rate was only 3.16%."

My own investigations, with students and other collaborators, have consistently reached the same conclusion. For example, Xu & Snyder (2010) examined English negative *wh*-questions, and found that they were grammatically well-formed in children's spontaneous speech, even at ages when errors like "What did he didn't move?" are common in elicited production. Similarly, Sugisaki & Snyder (2003, 2010) found that children successfully avoided co-mission errors in their earliest prepositional questions, and also in their "fragment" answers to the prepositional questions of adults, both in English and in Spanish.

Indeed, Sugisaki & Snyder (2003) provided a statistical argument that four of the ten English-learning children in their study must have been actively avoiding prepositional questions, each for a period of several months, when they were already producing both direct-object questions and PP complements to verbs. Evidently the children did not yet know, and (in some sense) knew they did not know, how to form the prepositional counterpart to a direct-object question.

## 3. Interim Discussion

### 3.1. Strong Support for GC

As should be evident from the studies in Section 2, even fairly short utterances give the child ample opportunity to make errors of co-mission. Yet, while every study examined a different surface construction, in every case the child made a rapid transition from never using the construction, to using it in an adult-like fashion, with remarkably few errors of co-mission. I believe the best explanation for this pattern is that the child is a grammatically conservative learner.

If, for example, the child's strategy were instead to "approximate" constructions in the input, using distributional patterns and analogical reasoning, it is extremely unlikely that every child studied would have chosen, on the first try, the correct syntactic, semantic, and/or morphological features on which to generalize. Unless the child were literally memorizing and re-using the utterances of adults verbatim, errors of co-mission would be easy to find.

Moreover, equipping the learner with UG does not, by itself, solve the problem. As mentioned in Section 2.1, verb-particle constructions are found in German as well as in English, but the syntactic details are different. Even if the child restricts her hypotheses to UG-compatible grammars, it will not be sufficient to find an "approximately" correct grammar. If the child tried to build English verb-particle constructions using whatever UG-sanctioned mechanisms are employed in German, errors of co-mission would result.

In my view, the scarcity of co-mission errors entails that the child is a "deterministic" learner, roughly in the sense of (Berwick 1985): There is no backtracking. The child changes her grammar, and thereby adds new surface

constructions to her spoken repertoire, only when she is highly confident that the change is correct. Once she has made the grammatical change, she does not (and perhaps cannot) back out of it.

This view is incompatible – or at least difficult to reconcile – with "trial-and-error" models like Gibson & Wexler's (1994) Trigger Learning Algorithm, Clark's (1992) genetic algorithms, and Yang's (2002) Variational Model of Language Acquisition. If, during the course of language acquisition, the child makes use of "interim" grammars with at least a few incorrectly set, non-subset parameters, then we ought to see co-mission errors fairly routinely (cf. Sugisaki & Snyder 2006).

The only alternative I see to the conclusion that the child is a deterministic, GC learner is to say she is conservative in the more "superficial" sense of staying extremely close to the precise sentences she has encountered in the input. Yet, I doubt anyone would claim that the child (and eventually, the adult) is limited to the exact sentences she has heard used by others. Is there any way the child could generalize, and diverge from the input, "just enough," but not "too much"? Rather than pursue this question directly, I will argue in Section 4 that it is moot: The grammatical information acquired by the child must, in at least some of the relevant cases, be highly abstract.

### 3.2. Some apparent exceptions to GC

Before beginning that discussion, let me address some of the apparent exceptions to GC. While most of the logically possible errors of co-mission are rare to non-existent in children's spontaneous speech, a few specific error-types do occur much more frequently. These include morphological overregularization (e.g. *go-ed* for 'went'), and optional / root infinitives (O/RI's, e.g. *Him fall down*; Schütze & Wexler 1996).

Yet, in both of these cases, the explanation is probably not that the child has made an incorrect hypothesis about the target grammar. In the case of overregularization, Marcus et al. (1992) have argued for a processing-based explanation, involving a delay in retrieval of the irregular form. In the case of O/RI's, there are good reasons to believe the explanation is related to a maturational change, in either grammar or processing (e.g. Wexler 1998, Rizzi 2007).

In neither case is it plausible that the error of co-mission results from the child temporarily adopting a possible, but incorrect, grammar for the adult language. Clear counterparts to O/RI's have not as yet been found in any of the world's (adult) languages, and overregularization errors are actually evidence that the child is following the correct grammar, a bit too rigidly. Hence, these

errors are exceptions to the pattern of 'omission, not co-mission', but are not exceptions to GC.[1]

I am led to the following position. Exceptions to the pattern of 'omission, not co-mission' demand an explanation as such. The investigator needs to explain why a co-mission error occurs there, and not elsewhere. It is insufficient – and *prima facie* implausible – to say that the child has temporarily selected an incorrect grammatical option.

**4. Against Superficial Conservatism: The Compounding Parameter**

The big question is how GC is even possible: How can the child's language faculty even function, if she does not make temporary commitments to potentially incorrect grammatical choices? And how can the child keep track of what she does not yet know?

One might be tempted to answer that GC is on the wrong track. The child is conservative, but not at the level of abstract grammatical choices. Instead, the child might avoid co-mission errors simply by staying extremely close to the specific phrases that she has encountered in the input. Proposals of "superficial" conservatism, in roughly this sense, can be found in (Bates & MacWhinney 1987) and (Tomasello 2003), among others.

Yet, superficial conservatism faces a number of severe empirical problems. Here I will discuss just one: a consistent pattern of concurrent acquisition across constructions that are superficially unrelated. This will require a bit of a digression, so I hope the reader will bear with me.

The domain of interest involves grammatical processes of compound word-formation. English is a language in which speakers can create novel, endocentric (i.e. "headed") compounds at will, out of uninflected roots, as illustrated in (11a).

(11) a. English: *university lab space committee*
b. Spanish: * *comité espacio laboratorio universidad*

I invented (11a) for purposes of this discussion, and I have no idea whether it has been used before. Regardless, a native-speaker of English will automatically construct a plausible meaning for it.

Spanish provides a sharp contrast. In (11b) I have assembled the counterparts to the roots in (11a). No matter what the order, the result is incomprehensible. Despite the fact that a number of bare-root, endocentric compounds (e.g. *hombre lobo*, literally 'man wolf', for 'werewolf') exist in the Spanish lexicon, new ones cannot be created at will.

[1] Another exception to 'omission, not co-mission', discussed extensively in (Murasugi 1990), is overuse of the morpheme *no* in children's Japanese. See (Crawford 2007) for an argument that this is not, however, an exception to GC.

As discussed in (Snyder 1995, 2001, 2010), certain syntactic structures are found only in languages that provide the type of "creative" compounding illustrated in (11a). Examples include the verb-NP-particle construction in (12a), and the adjectival resultative construction in (13a). The direct counterparts in Spanish, (12b) and (13b), are impossible. I refer to the point of variation exemplified here as 'The Compounding Parameter' (TCP); the positive setting of TCP is a "pre-requisite" for creative compounding, and also for the syntactic constructions in (12) and (13). (In Section 5 I will give a precise characterization of TCP.)

(12) a. English: *Mary pulled the top off.*
b. Spanish: *María tiró el tapón (* de).*

(13) a. English: *John beat the iron flat.*
b. Spanish: *Juan golpeó el hierro (*plano).* ['*' on a result reading]

The cross-linguistic survey in Table 1 supports this generalization. Note, however, that the relationship between separable particles and creative compounding is unidirectional. Japanese, for example, provides creative endocentric compounding, but lacks any way for a particle to occur separately from the main verb.

Crucially, the relationship between particles and creative compounding carries over to the time-course of child language acquisition. Figure 3 (cf. Snyder 1995, 2001), based on longitudinal corpora for ten children acquiring American English (CHILDES, MacWhinney 2000), compares the age (in years) of FRU (First clear use, followed soon after by Repeated Uses; cf. Stromswold 1996, Snyder 2007) for the V-NP-Particle construction, versus age of FRU for a novel (non-lexical) N-N compound.

**Table 1. Results of a cross-linguistic survey (cf. Snyder 2010).**[2]

| Language | Separable particles? | Adjectival resultatives? | Creative N-N compounding? |
|---|---|---|---|
| *(Austroasiatic)* Khmer | Yes | Yes | Yes |
| *(Finno-Ugric)* Estonian | Yes | Yes | Yes |
| *(Germanic)* Dutch | Yes | Yes | Yes |
| *(Sino-Tibetan)* Mandarin | Yes | Yes | Yes |
| *(Tai)* Thai | Yes | Yes | Yes |
| Japanese | No | Yes | Yes |
| *American Sign Language* | No | Yes | Yes |
| *(Afroasiatic)* Egyptian Arabic | No | No | No |
| *(Austronesian)* Javanese | No | No | No |
| Basque | No | No | No |
| *(Romance)* Spanish | No | No | No |
| *(Slavic)* Serbo-Croatian | No | No | No |

[2] In a departure from (Snyder 1995, 2001), this table classifies Basque as a language that lacks creative compounding of the English type. For discussion, see (Snyder 2010).

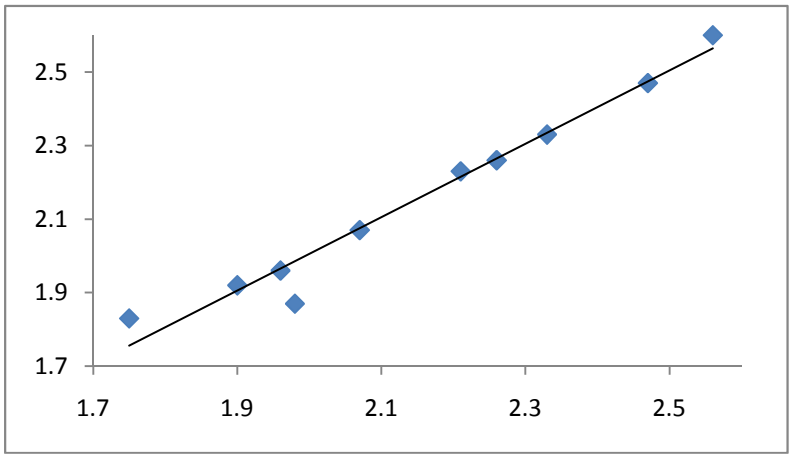



Figure 3. Ages of acquisition (FRU), in years. N=10.
(x-axis: V-NP-Particle; y-axis: novel N-N Compound)

The correlation between onset of particles and onset of compounding is exceptionally strong ($r$=.98, $t$(8)=12.9, $p$<.0001), and the findings are much the same in a follow-up study (Snyder 2007, Chapter 5) where the N is increased to 19, using a mixture of U.S. and British children. Moreover, partial correlations, removing the contributions of various control measures, remain extremely strong: partialling out the age at which MLU first reached 2.5 words: $r$=.94, $p$=.0001; the age of the first lexical N-N compound: $r$=.95, $p$=.0001; or the age of the first A-N combination: $r$=.95, $p$=.0001.

Note that the best-fitting line in Figure 3 is very nearly an identity function. Yet, as illustrated by Japanese, while compounding is a necessary condition for the particle construction, it is not sufficient. One might therefore have expected to see children who acquired compounding first, and only some months later acquired the remaining pre-requisites for the particle construction. The explanation for the pattern in Figure 3, I believe, is that children acquiring English consistently acquire the verb-particle construction first, and get creative compounding as a by-product.

As discussed in (Roeper, Snyder, & Hiramatsu 2002), simply hearing N-N compounds in the input does not tell the learner whether they are novel or lexical. Hearing a "recursive" compound (e.g. [[N N] N]) is a reliable indicator that the language has creative compounding (Namiki 1994), but recursive compounds occur less frequently. In Japanese, where recursive compounding may be the only reliable indicator, creative compounding is typically acquired between the ages of three and four (Sugisaki & Isobe 2000). The much earlier acquisition of creative compounding in English suggests that the children are exploiting another source of evidence, and the identity function in Figure 3 is a strong indication that that evidence is the verb-particle construction. When the

child identifies the grammatical basis of the verb-particle construction, she gets creative compounding for free.

Regardless, the strong association between compounding and particles in Figure 3 is sufficient to answer our question. In the time course of acquiring English, there is an extremely tight connection between two superficially unrelated linguistic constructions. The information that the child is acquiring, whatever exactly that is, must be sufficiently general to cut across those superficial differences. Superficial conservatism is not an option.

## 5. Compatible Models of Syntactic Knowledge

Let's turn now to the million-dollar question: What kind of syntactic framework would even make GC possible? Regrettably, I cannot (as yet) provide a fully satisfactory answer. All I can offer are some observations and speculations.

As a case study, let's go back to the example of TCP. What kind of information, exactly, is the child acquiring in this case? Over the years I have explored a variety of possible answers, and my conclusion is that TCP is fundamentally a parameter of the syntax-semantics interface. Let me try to explain, as briefly as possible, what I mean. As we will see, the positive setting of TCP amounts to the addition of a new mechanism for "constructing" interpretable syntactic structures.

In (14) I state TCP in terms of a specific mode of semantic composition that I call Generalized Modification: Languages like English have it, and languages like Spanish do not. GM is characterized formally in (15).

(14) **The Compounding Parameter (TCP)**
The language (does / does not) permit Generalized Modification.

(15) **Generalized Modification (GM)**
If syntactic objects α and β both denote kinds, and β has been syntactically adjoined to α, then interpret the adjunction structure semantically as a subtype of the kind denoted by α, that stands in some pragmatically suitable relation to the kind denoted by β.

In (15), when I use the term *kind* I have in mind the special sense of (Chierchia 1998:348):

> [K]inds are generally seen as regularities that occur in nature. They are similar to individuals like you and me, but their spatiotemporal manifestations are typically 'discontinuous'. To any natural property, like the property of being a dog, there corresponds a kind, viz. the dog-kind.

The characterization in (15) is loosely based on Kratzer's (2010:16-17) approach to the semantics of English nominal compounding. Kratzer's work, in turn, is inspired by proposals of Jackendoff (2002:249-250).

In Kratzer's (2010) view, most types of semantic composition are mediated by functional heads. An exception, however, is the operation responsible for English nominal compounding. There, the simple hierarchical relationship established by an operation of adjunction gives rise to a very general form of semantic modification – what I am calling GM. (Note that GM is similar to what I termed 'Rule C' in some of my earlier works.)

GM is illustrated in (16), where the N *frog* has been adjoined to the N *woman*, and gets interpreted semantically as a modifier.

(16) || *frog woman* || = a subtype of the || *woman* || kind that stands in some pragmatically suitable relation to the || *frog* || kind.
= woman <u>of a type related to</u> frogs.

The semantics in (16) is deliberately broad, because the interpretation of nominal compounds in a language like English is extremely flexible. For example, in the right context, the compound *frog woman* could be used to describe a woman who studies frogs, eats frogs, looks like a frog, or has a frog statue in front of her house, among many other possibilities.

There are two main ways that my account diverges from Kratzer's and Jackendoff's. The first is my claim that GM is unavailable in certain languages. Neither Kratzer nor Jackendoff addresses cross-linguistic variation of this kind. The second is that I take GM to have uses outside of compounding, a possibility that (to my knowledge) neither Kratzer nor Jackendoff discusses:

(17) || *wipe the table clean*||
= a table-wiping event <u>of a type related to</u> the table being clean
= an accomplishment event, whose development consists of wiping the table, and whose culmination consists of the table being clean

In (17) I have used GM to obtain the special semantics of an English adjectival-resultative construction, by applying it not to kinds of individuals but to kinds of eventualities, and by assuming that the inventory of eventuality-types, in contrast to individual-types, is very tightly constrained (cf. Levin & Rappaport Hovav 1995, Snyder 2005, Snyder & Lillo-Martin 2005).

Now that I have sketched my latest views on the precise nature of TCP, let's return to the issue at hand: What kind of grammatical framework would even make GC possible? One possible answer, suggested by the case of TCP, is a framework in which the points of grammatical variation concern specific grammatical "operations" that can be used for building interpretable structures.

On this model, UG would provide an array of possible operations, and for each one the child would have to decide whether her target language made it available. Crucially, each time the child decided to add a given structure-building operation to her grammar, an array of new surface constructions, in some cases superficially quite disparate, would begin to appear in her speech.

We might call the optional, structure-building operations "constructive" parameters. TCP would qualify as a constructive parameter, even though it does not provide an operation of syntactic structure-building *per se*, because its positive setting provides a new semantic composition rule, and thereby permits new syntactic combinations that would otherwise be uninterpretable.

The idea of constructive parameters resembles a recent proposal in Minimalist syntax, made by Luigi Rizzi (2010). Taking functional heads as a major locus of cross-linguistic variation, Rizzi suggests that the information in a functional head might be thought of as a "blueprint" for a larger piece of syntactic structure. In order to satisfy its particular featural requirements, a specific type of structure, much larger than the functional head itself, would get built.

Another family of proposals that fit well with the notion of structural parameters is exemplified by Janet Fodor's (1998) idea of a syntactic "treelet." In brief, a treelet is an annotated fragment of a phrase-structure tree, corresponding to syntactic material at the point of spell-out. Treelets are similar to the "cues" of (Dresher 1999) and (Lightfoot 1999). Grinstead (2010) also suggests that the "constructional idioms" discussed in (Jackendoff 2002), for example, could be similar to treelets in important ways.

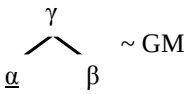
On Fodor's approach, parametric choices might take the form of including or excluding a particular treelet (or perhaps a set of treelets) as an option in the language. Moreover, Fodor proposes the highly appealing idea of "parsing to learn," which involves a parser that operates in terms of treelets. If an input sentence can be parsed using a particular combination of treelets, and there was no point of ambiguity in the parse, then the treelets employed in the parse must be permitted in the target language. Sakas and Fodor (2010) have been working to implement this idea in a realistic computer model.

On the 'parsing to learn' approach, GC would be easy to achieve. For purposes of comprehension, the child's parser might analyze the input using all possible treelets. In production, however, the child would only use the treelets that had been identified (through an unambiguous parse) as definitely permitted in the target language.

The crucial question, to my mind, is whether treelets would be powerful enough to capture a point of variation as abstract as the TCP. I am unsure, but I can imagine a possible approach. Perhaps a treelet can include not only morphosyntactic information, but also semantic information – how the constituents in the treelet are to be composed semantically. In addition, maybe treelets can be abstract (e.g. with syntactic categories left unspecified). I assume

that the child would be unable to pronounce such a treelet, however, unless she "overlaid" it on another treelet with full specification of syntactic categories. In (18) I have tried to sketch what an abstract treelet for TCP might look like.

(18) TCP treelet:




(LR-order open)

For example, in the nominal compound *frog woman*, the head α would correspond to *woman* (since complex words in English obey the right-hand head rule), while β would correspond to the non-head *frog*, and if (18) is overlaid on the nominal-compound treelet, [$_N$ N N], then *frog* would get interpreted (appropriately) as a "general modifier" of *woman*.

**6. General Remarks and Conclusions**

To conclude, let me make a few general observations. First, GC greatly increases the utility of spontaneous speech data: When a child abruptly goes from never using a particular construction, to using it frequently and correctly, we are entitled to conclude that she has genuinely acquired one of the grammatical or lexical properties of the target language. Therefore, longitudinal records of children's spontaneous speech become an extremely valuable testing ground for theories of cross-linguistic variation (cf. Snyder 2007).

On a different note, to the extent that children exhibit GC, this increases the burden of the Logical Problem of Language Acquisition: For explanatory adequacy, a linguistic theory *now* needs to be compatible with the success of a GC learner.

Finally, I believe the existence of GC imposes considerable constraints on the possible architecture of the human language faculty. GC is crucially not "superficial" conservatism, as evidenced by children's concurrent acquisition of particle constructions and compounding in English. Instead, the information acquired by the child must, at least in some cases, be highly abstract. My speculation is that the acquisition of syntax, and perhaps also of other areas of grammar, might take the form of adding new structure-building operations.

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