On learning and grammatical theory*

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0. Introduction

The central issue in linguistic theory is the question of what the speaker knows when he or she knows a language; in oher words, what constitutes grammar? Given that a child acquiring a language must be exposed to some linguistic environment, the problem of learning naturally arises. Therefore, an issue that is often raised in linguistic theory is whether a grammatical prime like the Subjacency condition on movement (Chomsky 1973) or the Empty Category Principle (ECP, Chomsky 1981) is learnable. In other words, the question is how the learner comes to acquire these (often abstract) grammatical principles.

The issue is all the more pressing and serious in the light of the fact that a competent speaker of a language has intuitions about what is possible and what is not. Suppose we idealize the linguistic ambiance that the learner is exposed to as containing *all and only* grammatical sentences, then one might claim that the learner would judge some example as possible if he or she has heard it before, and as impossible otherwise. But as Chomsky argued almost four decades ago, speakers have the potential of understanding and producing examples that they have never heard or spoken before. The linguistic competence must therefore contain a system of (abstract) principles which gives the speaker the intuitions about what is impossible.

However, no one would disagree that the linguistic ambiance that the learner is exposed to is rather impoverished, including grammatical and ungrammatical sentences. Worse still, the learner is generally not explicitly told which examples are grammatically possible, and which examples are not. Chomsky therefore concluded *on logical grounds* that this system of principles that constitute linguistic competence must be innate.

The concern about learning and grammatical theory is ultimately related to the interest in the make-up of the grammatical system. One thus hopes to be able to have some *independent measures* of justifying (abstract) grammatical primes of the linguistic competence. It is in this context that the issue of learning seems to be of relevance; after all, the learner must be exposed to linguistic data. We can think of a grammatical prime being learnable if and only if there is a learning algorithm that gives rise to that prime.

The issue of learnability of a grammatical prime and the question of whether it should be in the grammar are a priori independent. Therefore, we have four cases to consider, as tabled in (1):[1]

(1)	learnable	in the grammar	
a.	+	+	variations
b.	+	–	eg the null subject parameter
c.	–	+	universals, eg no movement of non-constituents
d.	–	–	eg surface filters

(1a) represents cases of language variations. (1b) represents cases where a prime can be shown to be learnable, but makes incorrect empirical predictions; hence, it is not in the grammar. (1c) represents cases of universals invariant across languages; these need not and perhaps cannot be learned. They are thus innate on logical grounds. (1d) represents uninteresting cases from the linguistic point of view. If we can show on empirical grounds that a grammatical prime

should not be in the grammar, then the fact that it is learnable or unlearnable is of no linguistic interest.

As it can be easily seen in the table, the viability of a grammatical prime is logically independent of its learnability. Being learnable does not imply being in the grammar (cf. (1a-b)), and being unlearnable does not imply not being in the grammar (cf. (1c-d)). Conversely, being in the grammar does not imply being learnable (cf. (1a-c)), and not being in grammar does not imply being unlearnable (cf. (1b-d)).

In what follows, I would like to consider each case in (1) with some concrete examples and argue that learning does not really tell us much about grammatical theory. I discuss a case of surface filter, the Doubly Filled COMP Filter (DFCF) of Chomsky and Lasnik (1977), and show that it is language variations that render it unviable, rather than learnability. I also give an analysis of how language variations with respect to the DFCF can be accommodated in Universal Grammar (UG, Chomsky 1957) without positing language-specific assumptions (section 1). I show how a grammatical prime like the null subject parameter can be shown to be learnable, and yet should not be taken to be in the grammar and suggest an alternative without any parameter to account for the same set of facts in terms of acquisition of phrase structure (section 2). I conclude the paper with a case of an unlearnable grammatical prime that should nevertheless be taken to be in the grammar, showing that learnability does not reveal the constitution of grammar (section 3).

1. Doubly Filled COMP

Chomsky and Lasnik (1977) pointed out that languages like English do not allow the co-occurrence of a *wh*-phrase and a complementizer in a local environment, as illustrated in (2):

(2) a. John wondered what (*that) Mary bought.
b. The man who (*that) John saw.

They thus suggested a surface filter like that in (3) to rule out examples of the type in (2):[2]

(3) Doubly Filled COMP Filter (Chomsky and Lasnik 1977:446)
*[$_{\text{COMP}}$ *wh*-phrase φ], φ≠e

A system of surface filters faces a number of conceptual problems, however. As Chomsky and Lasnik themselves pointed out, the filter in (3) is language-specific. Earlier stages of English allowed violations of the DFCF. In addition, the very specific syntactic description of the DFCF renders it construction-specific. It is quite obvious that language-specific and construction-specific grammatical primes seriously undermine explanatory adequacy. Language-specificity is in direct conflict with the conception of UG as a system of principles that are invariant across languages, and construction-specificity reduces the generality of the grammar. The DFCF in (3) is in fact a special case of the filter in (4), which has more specific conditions; others filters discussed in Chomsky and Lasnik (1977) like those in (5) and (6) also have construction-specific conditions:[3]

(4) *[$_{S'}$ ±WH [$_{NP}$ e] …], unless S′ or its trace is in the context: [$_{NP}$ NP ___ …]

(5) *[$_{NP}$ NP tense VP] except in the context
[$_{\alpha}$ [$_{\beta}$ X] ___], where X is a verb or *for*, β is its immediately dominating category, and α immediately dominates β.

(6) *[$_{S'}$ COMP NP …], where S′ is a root sentence.

It is not at all obvious why the very conditions as stated in the filters should hold. In the absence of a theory that take this question into consideration, and explains how the various filters are related, the filters are but a collection of arbitrary constraints. Another serious conceptual problem for the system of filters is that they do not seem to be related to anything else in the grammar, but are simply restatement of facts.

Chomsky and Lasnik (1977) remarked that it is hardly imaginable that the learner of English is explicitly told that examples of the type in (2) are impossible. Even if we assume that these examples might be in the input stream of data by performance errors, given that the learner is not told which examples are possible, and which are not, there seems to be no way the learner could deduce the existence of the DFCF from the linguistic input. If there is indeed no algorithm with which the learner comes to realize a constraint like the DFCF, then the filter cannot be learned.

By itself, the unlearnability of the filter is not necessarily problematic for linguistic theory, since they might very well be innate, hard-wired to the language faculty from the start. What is most problematic for the system of surface filters is the fact that it does not square well with the conception of UG as a system of cross-linguistic invariant principles on the one hand and language variations on the other. Consider Bavarian, for instance. Bavarian allows cooccurrence of a *wh*-phrase and a complementizer, as illustrated in (7) (Bayer 1984):

(7) a. I woaß daß Xaver des toa hod.
I know that Xaver this done has
'I know that Xaver has done this.'
b. I woaß ned wer daß des toa hod.
I know not who that this done has
'I don't know who has done this.'

(8) a. I wui wissn, wià schnäi daßd fahsd.
I want know how fast that-you drive
'I want to know how fast you drive.'
b. Schàmmà muàß mà si, wià gschlambbàd daßds ees dàheàkemds.
shame must man self how sloppy that you come around
'One must be ashamed of how sloppy you go around.'

Now, since the filter cannot be learned, it can only come from UG. The problem is that particular languages would have different UGs according as whether they allow violations of the DFCF. We thus arrive at an unacceptable conclusion. UG is, by hypothesis, invariant across languages.

An easy out of this problem is to assume that filters are in fact in UG as some sort of parameter with a negative value from the start, and that the value can be changed to positive when the learner has evidence for it from the linguistic input. Along these lines, speakers of English has the DFCF with the negative value in UG; they need not be explicitly instructed that examples of the type in (2) are impossible. For speakers of Bavarian, however, given that

they are exposed to examples like those in (7), they change the negative value of the DFCF to the positive one. Apart from the issue of whether particular grammars having different values for a specific filter have the same UG, the problems of construction-specificity and of explanatory adequacy still remain. It is hardly a satisfactory solution to replace filters with parameters that themselves do not have independent motivation.

From the point of view of Occam's Razor, a theory without filters is better than one with filters. I would like to pursue a better alternative in what follows. I would like to suggest that facts about DFCF be accounted for in terms of the different structures constructed. In particular, I claim that the non-interrogative complementizer *that* in English or *daß* in Bavarian, it has the *universal* property of disallowing a *wh*-phrase in its Spec, perhaps due to the independent fact that it may never head a *wh*-clausal complement (ie, embedded questions):[4]

(9) a. *John wondered that Mary bought the book.
b. John wondered what Mary bought.
c. *John wondered what that Mary bought.

(10) a. *Der Hans fragt si, daß de Maria das Buch kaffd.
the Hans ask himself that the Maria das book bought
'Hans wonders that Maria the book.'
b. Der Hans fragt si, was de Maria kaffd.
the Hans asks himself what the Maria bought.
'Hans wonders what Maria bought.'

Thus, knowing that a *wh*-phrase must land in SpecCP and that the complementizer *daß* does not permit a *wh*-phrase in its Spec, speakers of Bavarian on exposure to examples like those in (7) and (8) would have no choice but to build another CP on top of the one headed by *daß*, as in (11a), in order to accommodate the facts:

(11) a. ... $[_{CP}$ was [$[_{CP}$ [daß $[_{IP}$ ...
b. ... $[_{CP}$ was [$[_{IP}$ ...
c. *... $[_{CP}$ was [$[_{CP}$ [$[_{IP}$ ...

When the learner hears examples like that in (10b) where in the embedded clause a *wh*-phrase appears without an overt complementizer, however, he or she would assign them single-CP structures like that in (11b). The reason for this single-CP structure, rather than a double-CP structure with an empty C position as in (11c), is that there is neither reason nor evidence for the latter.

Apart from embedded questions where a *wh*-phrase may appear in the Spec of an overt complementizer, Bavarian relative clauses permit a relative pronoun co-occurring with what is otherwise a *wh*-phrase:[5]

(12) a. Der Mantl den wo i kaffd hob.
the.NOM coat 3SG.MASC.ACC I bought have
'The coat which I bought.'
b. Der Mõ dem wo mir g'hoifa hom.
the.NOM man 3SG.MASC.DAT we helped have
'The man whom we have helped.'

c. A spuizeig, mit dem wo des Kind g'spuit hod.
a toy with 3SG.MASC.DAT the child played has
'A toy with which the child played.'

The relative pronoun *den* is homophonous with the singular masculine definite article in the accusative case and the singular masculine accusative case pronoun, and *dem* is homophonous with the one in dative case:

(13) a. I hob den Mõ g'säng.
I have the.ACC man seen
'I saw the man.'
b. Den kenn i ned.
3SG.MASC know I not
'I don't know it/him.'

and *wo* 'where' otherwise has the distribution of a *wh*-phrase in questions:

(14) a. Wo hod Xaver den Mantl kaffd?
where has Xaver the coat bought
'Where did Xaver buy the coat?'
b. I woaß ned wo Xaver den Mantl kaffd hod.
I know not where Xaver the coat bought has
'I don't know where Xaver bought the coat.'

If relative pronouns and *wh*-phrases universally appear in SpecCP, then the sequence of a relative pronoun and a following *wo* must involved two Spec positions. The structure of a relative COMP would be a double-CP structure like that in (15), where the relative pronoun and *wo* each occupies a Spec position:[6]

(15) ... $[_{CP}$ d-pronoun [$[_{CP}$ *wo* [$[_{IP}$ ...

A child learning Bavarian, with the knowledge of the syntax of relative pronouns and *wh*-phrases, he or she would again have no choice but to project a double-CP structure as in (15) in order to accommodate the examples in (12).

By contrast, English speakers lacking exposure to examples allowing doubly filled COMPs would have no evidence for building double-CP structures like those in Bavarian. They would have to move the *wh*-phrase to the Spec of *that*, violating the lexical property of the non-interrogative complementizer:

(16) *... $[_{CP}$ what [that $[_{IP}$ ...

My analysis of the doubly filled COMP facts has three advantages. First, languages that allow doubly filled COMPs and those that do not have the same UG in that their particular grammars do not contain a language-specific assumption distinguishing one from the other.[7] Second, despite their difference with respect to the DFCF, the non-interrogative complementizer (English *that* and Bavarian *daß*) has the same property in both types of languages, namely, it universally disallows a *wh*-phrase in its Spec. Third, it explains why

children learning languages obeying the DFCF like English never make mistakes in erroneously allowing an overt *wh*-phrase in the Spec of the complementizer *that*.

To the extent my analysis of doubly filled COMP facts is correct, it makes a case for the independence of learning and grammatical theory in that learnability by itself does not argue for or against a grammatical prime being in the grammar. Surface filters are not learnable, but are not in the grammar for reasons independently of learning. Rather, it is primarily language variations and the conception of UG as a system of principles invariant across languages that argue against the filters. It thus appears that quite generally we need not appeal to learning to decide whether a grammatical prime is in the grammar; linguistic evidence (syntax, semantics, phonology, etc) suffices.

2. Null subject

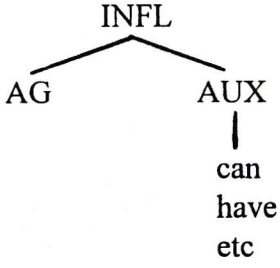
It is well-known that children systematically allow null subjects (NSs) in early stages of language development independently of whether the ambiant language allows NSs or not. Thus, the fact that children learning English and German, for instance, consistently have NSs cannot possibly attributed to the linguistic input they get, since these languages generally require an overt subject. Linguistic theory not only must bring other independent differences between NS languages (NSLs) and non-NSL to bear on NS, and explain why it is that children choose to have NS in early stages of language development, even if the ambiant language is a non-NSL, but also must provide an account of how they come to realize that the linguistic environment to which they are exposed comes from a NSL or a non-NSL.

In this section, I consider some analyses of NS that rely on a parameter, and discuss them in the context of language development (sections 2.1 and 2.2). I argue on empirical grounds independently of learning, however, that there is no need for such a parameter and propose to account for NS by pronoun incorporation, a process that crucially hinges on V-to-I verb movement (section 2.3). The issue of how a NSL or non-NSL is identified is then discussed (section 2.4), and an account for NS in the initial state of the language is suggested to be due to the process of acquisition of phrase structure (section 2.5).

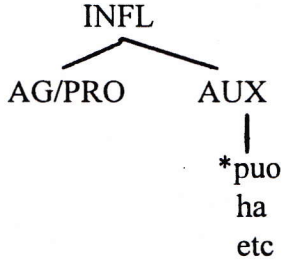
2.1. Null subject and INFL

Hyams (1989) claimed that language contains a NS parameter that she refers to as the AG/PRO parameter, which universally has the NS option as the initial value, and that the conditions sanctioning NSs are related to the syntactic properties of modals and auxiliary verbs. More specifically, she suggested that the structure of INFL is as in (17) where AG=PRO in NSLs like Italian or AG≠PRO in non-NSLs like English:

(17) a.



b.



NSLs cannot have modals in INFL since PRO would be governed, violating the constraint against government of PRO (Chomsky 1981:191), a result of the interaction of binding and government modules of the grammar:

(18) PRO is ungoverned.

The connection between NS on the one hand, and modals and auxiliary verbs on the other is thus established.

Zagona (1982) gave several arguments for a separate Aux constituent in English, including facts about tag-formation, negative placement, VP deletion and Subject-Aux inversion:

(19) a. Peter hasn't eaten, has he?
b. John will not finish his paper.
c. Mary isn't coming tonight, but Sue is.
d. Will Robert find his sunglasses?

But none of these is possible in Italian, a NSL. The fact that neither the negation *non* 'not' nor a pronominal clitic may intervene between the auxiliary *avere* 'have' apparently suggests that the Italian auxiliary verb does not occur in Aux:

(20) a. *Mario ha non mangiato. (cf. Mario non ha mangiato.)
'Mario has not eaten.'
b. *Mario ha lo mangiato. (cf. Mario lo ha mangiato.)
'Mario has eaten it.'

In addition, the impossibility of deleting a VP, stranding the auxiliary *essere* 'be' behind as shown in (21) might be taken to be evidence that the auxiliary does not appear in INFL:

(21) *Maria non è arrivata ancora, ma Gianni è.
'Maria hasn't arrived yet, but Gianni has.'

If the occurrence of the modals and auxiliary verbs to the left of the subject (cf. matrix questions in English) involves left-ward movement from INFL, then the ungrammaticality of the examples in (22) would follow from the assumption that Italian modals and auxiliary verbs do not appear in INFL:

(22) a. *Ha Gianni mangiato.
'Has Gianni eaten?'
b. *E Gianni arrivato.
'Has Gianni arrived?'
c. *Puó Gianni aiutarci.
'Can Gianni help us?'

The non-existence of tag-formation in Italian would be expected as well, if the construction indeed involves left-ward movement of INFL.

On the basis of the facts given in (20)-(22), Hyams concluded that the Italian INFL has the structure as in (17b) where modals and auxiliary verbs do not appear in INFL, but as main verbs inside VPs.

From the acquisition point of view, the emergence of modals and auxiliary verbs in the Aux position would exclude NS, as they would govern PRO in INFL (cf. the structures in (17)). The expectation seems to be borne out. Examples like those in (23) are quite common in

child language at the point where modals and auxiliary verbs have not emerged (Bloom, Lightbown and Hood 1975):

(23) Play it (Eric II)
Want more apple (Eric III)
Ride Dumbo (Gia II)
Eat piece (Gia II)
Touch milk (Kathryn II)
Want go get it (Kathryn III)

Combining facts in (23) with the absence of the English auxiliary *be* and the modals in the same period of time as well as the later (more or less) concurrent development of lexical subjects and the modals and the auxiliary *be*, as shown in (24):

(24) a. There's a birdie in there (Eric V)
There's a little ball (Gia V)
It's nice and clean (Gia V)
There's Humpty Dumpty up there (Kathryn III)
b. It doesn't fit (Eric IV)
What is the baby doing? (Gia V)
Foot goes over here (Kathryn III)

the connection between NS on the one hand and the auxiliary *be* and modals on the other seems quite natural.

If language universally has NS as the initial value of the NS parameter, then there must be some trigger in the linguistic input that signals to the learner that the ambiant language is a non-NSL. Hyams suggested that the detection of overt expletives and unstressed pronouns be the trigger for the resetting of the NS parameter to the non-NS value.

Some facts about acquisition of German appear to further corroborate Hyams' analysis of NS. Children learning German systematically allow NS (Clahsen and Muysken 1983) and OV word-order in early stages of acquisition (Park 1970, cited in Roeper 1973), despite the fact that a lexical subject is required and main clauses have the VO word-order in the adult language. Thus, examples of the type in (25) are quite common in early stages of acquisition of German (from Mills 1987):

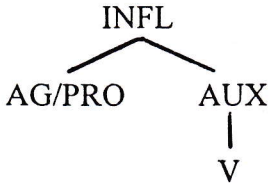
(25) Teddy holen
'fetch teddy'
Hause gehen
'go home'
Meike abmachen
'take (it) off Meike'
Teddy sofa fahren
'teddy drives the moped'
Meike fenster gucken
'Meike is looking out the window.'

If the VO order is derived from the OV order by first moving the verb to INFL, which is then preposed past the object (Thiersch 1978), as shown in (26):

(26) a. Hans $[_{VP}$ Maria e_i $]$ $[_{INFL}$ liebt$_i$ $]$
b. Hans $[_{INFL_j}$ liebt$_i$ $]$ $[_{VP}$ Maria e_i $]$ $[_{INFL}$ e_j $]$

then the fact that NS is inconsistent with the VO order follows immediately. This is because PRO in INFL representing the NS would be governed when the verb moves to INFL:

(27)



By contrast, NS is possible with the OV order. This is because the verb is not in INFL, and PRO in INFL is not governed.

In Hyams' analysis, then, particular languages differ with respect to whether AG is PRO or not. If AG=PRO, then the language allows NS but not modals in INFL; if AG≠PRO, then language permits modals in INFL but not NS. For the learner, it is not difficult to figure out whether the ambiant language is a NSL or not. If it is a NSL, then he need not do anything. The initial setting of the NS parameter would remain as is. However, if the learner detects the existence of modals as evidenced in tag-formation, negative placement, VP deletion and Subject-Aux inversion, or the presence of overt expletives and unstressed pronouns, or if the learner realizes that the verb moves to INFL, then he or she must set the NS parameter to the non-NS value. As what the learner needs in order to reset the NS parameter is positive evidence, identifying a non-NSL is unproblematic.

Given that the parameter is learnable, should it be in the grammar? How do we decide? Does learnability bear on the issue? I would like to argue that there are both conceptual and empirical reasons to suppose that the parameter is not in the grammar, despite its learnability.

Conceptually, Hyams' analysis of NS crucially hinges on the assumption that PRO cannot be governed. Thus, if it turns out that the distribution of PRO is not incompatible with PRO being governed (Jaeggli 1980, Bouchard 1982), then we can no longer attribute the impossibility of NS to government of PRO in INFL. In addition, it is not at all clear that PRO should be allowed to occur inside INFL as in (17b). PRO seems to have the distribution of a maximal projection, as illustrated in (28)-(29):

(28) a. [PRO to please John] is easy.
b. [for [Bill to please John]] is easy.
c. [for [[Bill's friends] to please John]] is easy.

(29) a. John bought the violin [PRO to play with]
b. John bought the violin [for [Mary to play with]]
c. John bought the violin [for [[the child he taught] to play with]]

one has to make some additional assumption to the effect that either a maximal projection may occur inside a X° as in (17b), or PRO in this case is in fact a X° which does not project maximally. It is difficult to see how one can go about justifying such an additional assumption.

Empirically, the facts presented in (20)-(22) do not seem to bear on NS. In particular, the impossibility of these examples certainly does not establish the link between NS on the

one hand and the syntax of modals and auxiliary verbs on the other. French pretty much patterns with Italian with respect to VP deletion and Subject-Aux inversion as shown in (30) and (31):

(30) *Marie n'est pas encore arrivé, mais Jean est.
'Marie hasn't arrived, but Jean has.'

(31) a. *A Jean mangé?
'Has Jean eaten?'
b. *Est Jean arrivé?
'Has Jean arrived?'
c. *Peut Jean nous aider?
'Can Jean help us?'

The lack of tag-formation in French follows from the fact that it generally does not allow an inflected verb to appear to the left of a non-pronominal subject, as shown in (31). Since French clearly does not allow NS, the impossibility of the French examples in (30) and (31) certainly does not bear on the conditions licensing NS. Therefore, the ungrammaticality of the comparable Italian examples in (20)-(22) tells us something about the positioning of verbs, negation and clitics in the language, rather than about NS. It does not reveal anything about NS in Italian any more than it does in French.

In fact, there are problems with the arguments based on the Italian data presented above. Although it is true that the negation *non* 'not ' and clitics may not intervene between a modal and a main verb as shown in (20), some other adverbial elements like *scrupolosamente* 'carefully', *daverro* 'indeed', *attentamente* 'attentively', *mai* 'never', *più* 'any longer' may:

(32) a. Gianni ha scrupolosamente studiato l'articolo.
'Gianni has carefully studied the article.'
b. Gianni non ha mai studiato l'articolo.
'Gianni has never studied the article.'
c. Gianni ha daverro studiato l'articolo.
'Gianni has indeed studied the article.'

The ungrammaticality of the examples in (20) is therefore due to the syntax of negation and clitics rather than that of the verb.

The relative positioning of verbs and adverbs in Italian is quite similar to that in French. An inflected main verb in French may be separated from its object by an adverbial (cf. Emonds 1978, Pollock 1989):

(33) a. Gianni studia attentamente l'articolo.
'Gianni carefully studies the article.'
b. Gianni non studia mai l'articolo.
'Gianni never studies the article.'

(34) a. Jean étudie soigneusement l'article.
'Jean carefully studies the article.'
b. Jean n'étudie jamais l'article.
'Jean never studies the article.'

It goes without saying that a clitic may not appear between an inflected auxiliary verb and an uninflected main verb in French either. The example in (35) is on a par with that in (20b):

(35) *Jean a le mangé. (cf. Jean l'a mangé.)
'Jean has eaten it.'

As the syntax of verb is more or less the same in both Italian and French, it cannot possibly be that the positioning of the verb is the reason for the difference between the two with respect to NS. Consequently, we have no reason to suppose that the grammar contains an AG/PRO parameter that relates NS to the syntax of modals and auxiliary verbs. It is quite clear that we need not appeal to learning in order to reach this conclusion.[8]

2.2. Null subject and morphological uniformity

Jaeggli and Safir (1989) claimed that NS is found in languages that have rich inflectional morphology in the verbal paradigms. That is, all inflected forms in a verbal paradigm contain some morphological marking encoding person and number features. In addition, they also claimed that NS is found in languages that have no such morphological marking, and suggested the parameter in (36) for NS:

(36) The Null Subject Parameter (NSP)
Null subjects are permitted in all and only languages with morphologically uniform inflectional paradigms.

Morphological uniformity is in turn taken to be as in (37):

(37) Morphological Uniformity
An inflected paradigm **P** in language **L** is morphologically uniform iff **P** has either only underived forms or only derived inflectional forms.

where a word **W** of category **K** is underived if it is morphologically non-distinct from the stem (or root) of **W**, and is derived if it is formed of a stem (or root) **W** plus an affix attached to **W**.

In this view, identification of a language as a NSL or not is rather trivial. All that is required of the child is to find out whether the ambiant language has a uniform inflectional paradigm or not in the sense of (37). Thus, if the ambiant language is a language like Spanish where the verbal inflectional paradigm has distinct forms for different persons and numbers, or if the ambiant language is a language like Japanese where the same verbal form obtains for all persons and numbers, then the child would realize that the ambiant language is in fact a NSL:

(38)

Spanish		Japanese
habl-o	'I speak'	ii-masu
habl-as	'you (sg) speak'	'I/you/we/they speak'
habl-a	'he/she speaks'	or 'he/she/it speaks'
habl-amos	'we speak'	
habl-áis	'you (pl) speak'	
habl-an	'they speak'	

The NSP in (36) is therefore learnable. Should it be in the grammar, though? How do we decide?

Despite the quite impressive range of languages, from Italian and Chinese on the one end to Icelandic and German on the other, that are correctly predicted by the NSP to be a NSL or not, it fails in the case of Haitian Creole (HC) and many other African languages. The inflectional paradigms in HC is as uniform as that in Chinese and Japanese in that it has the same form for all persons and numbers; yet, NS is impossible:

(39) a. mwen/ou/li/nou/yo pati.
1SG/2SG, 2PL/3SG/1PL/3PL left
'I/you(sg)/he/she/it/we/you(pl)/they left.'
b. Jan/nèg la/ *∅ pati.
Jan man DET leave
'Jan/the man left.'

According to Koopman (1984:173ff), the verb in the West African language Vata does not carry inflectional markings expressing subject verb agreement, but NS is not possible:[9]

(40) a. ń/ǹ/Ó, Ú, É.../à/á/wá gbā.
'I/you/he, (3rd pers)../we/you/they speak.
'I/you/we/you/they speak.' or 'he/she/it speaks.'
b. *gbā.
'I/you/we/you/they speak.' or 'he/she/it speaks.'

HC and Vata are thus straightforward counterevidence to the NSP.

Once again, we can see that the fact that a grammatical prime is learnable does not necessarily imply that it should be in the grammar. If one is interested in the question of what constitutes grammar, one can bring cross-linguistic variations to bear on the issue. There is no need to appeal to learning.

2.3. Null subject as pronoun incorporation and null arguments

The viability of the NSP depends not only on the arguments in favor of it, but also on the alternative accounts for NS. I would like to provide an alternative account of NS with no parameter, again, without appealing to learning. To the extent that my alternative is correct, it argues for the independence of syntactic theory and learning in that one can present cross-linguistic empirical facts rather than learning-theoretic grounds to argue for a grammatical prime being in the grammar.

Law (1993) argues that NSLs are languages that have pronominal incorporation from SpecVP, rather than are the results of setting of a NS parameter. The condition for incorporation from SpecVP is crucially contigent on V-to-I verb movement, as the trace of the incorporated subject in SpecVP would only be properly governed from I:

(41) ... $V°_i$+I° [$_{VP}$ adverb [$_{VP}$ t_i ...

We have ample evidence that the verb moves to I in Italian. Examples in (32)-(33) are instantiations of the schema in (41). The lack of the *that*-trace effect (Rizzi 1982) when the subject is extracted from SpecVP further corroborates the claim that the verb moves to I in Italian:

(42) a. Chi credi che verrà?
'Who do you think will come?'
b. ... verrà$_i$+I° [$_{VP}$ t_i ...

The grammaticality of the example in (42a) is due to the fact that the subject trace in SpecVP is properly head-governed by the verb that has moved to I. The trace of a pronominal subject incorporating into I would also leave a properly head-governed trace, giving rise to NS.

The reason why English does not have NS is precisely because it does not have V-to-I verb movement. Incorporation of a pronominal subject from SpecVP would leave an ungoverned trace, violating the ECP. Why do French and Germanic languages lack NSs then, given that they do have V-to-I verb movement? The reason for this is that they do not have pronominal incorporation. Subject pronouns in these languages exhibit non-X° syntactic properties. The clearest piece of evidence for this is the fact that a pronominal subject might appear to the right or to the left of an inflected verb:

(43) a. Que suis-je? vs Je suis étudiant.
'Who am I?' vs 'I'm a student.'
b. Wen kennen sie? vs Sie kennen ihn.
'Who do they know?' vs 'They know him.'

The distribution of unstressed subject pronouns (cf. footnote 10) and verbal morphology is good diagnostics of pronominal incorporation. In languages like French that have some inflectional morphology, the verb forms may have formally different endings in accord with the number and person features and the verb stem to which the ending attaches, but the subject pronouns are always the same regardless of the verb stem:

(44)

être 'to be'		préférer 'to prefer'	
je 'I'	suis 'am'	je 'I'	préfère 'prefer'
tu 'you'	es 'are'	tu 'you'	préfères 'prefer'
il/elle 'he/she/it'	est 'is'	il/elle 'he/she/it'	préfère 'prefers'
nous 'we'	sommes 'are'	nous 'we'	préférons 'prefer'
vous 'you'	êtes 'are'	vous 'you'	préférez 'prefer'
ils/elles 'they'	sont 'are'	ils/elles 'they'	préfèrent 'prefer'

That is, the ending of the first person, plural, non-past tense of the verb *être* 'to be', for instance, is different from that of the verb *préférer* 'to prefer', but the subject pronoun is always *nous* 'we'. French unstressed subject pronouns clearly do not incorporate into the verb.

By contrast, in languages like Italian there is no necessary morphology marking the presence of a subject pronoun. There is no identifiable morpheme that always appears with the verb form and that can be taken to represent the subject:[10]

(45)

guardare 'to watch'		preferire 'to prefer'	
guardo	'I watch'	preferisco	'I prefer'
guardi	'you watch'	preferisci	'you prefer'
guarda	'he/she/it watches'	preferisce	'he/she/it prefers'
guardiamo	'we watch'	preferiamo	'we prefer'
guardate	'you watch'	preferite	'you prefer'
guardano	'they watch'	preferiscono	'they prefer'

One might take the endings *-o*, *-i*, *-a*, *-iamo*, *-ate/-ite* and *-ano/-ono* as enclitic subject pronouns, but one would then have to say that these pronouns have different morphologies according to the verb stem to which they attach. That is, we would have to say that the third person, plural subject pronoun, for instance, is the ending *-ano* when it attaches to the stem *guardare* 'to watch', but is the ending *-ono* when it is suffixed to the stem *preferire* 'to prefer'. One would then face two problems.

First, we would have to explain why subject pronouns have different forms according as the stem to which it attaches, but non-subject pronouns do not. As shown in (46), the object pronoun in Italian remains the same whether the stem verb is *guardare* 'to watch' or *preferire* 'to prefer', on a par with French:

(46) a. lo/la/le/li guard*ano*.
3SG.MASC/3SG.FEM/3PL.MASC/3PL.FEM watch.3PL
'They watch him/her/them.'

b. lo/la/le/li preferisc*ono*.
3SG.MASC/3SG.FEM/3PL.MASC/3PL.FEM prefer.3PL
'They prefer him/her/them.'

(47) a. Ils le/la/les regardent.
3PL 3SG.MASC/3SG.FEM/3PL watch.3PL
'They watch him/her/them.'

b. Ils le/la/les préfèrent.
3PL 3SG.MASC/3SG.FEM/3PL prefer.3PL
'They prefer him/her/them.'

Second, we have to account for why the form of the Italian subject pronoun may vary, but that in French does not. The best way to avoid these two problems is, it seems, to consider the different verb forms as shown in (45) as morphological manifestations of the amalgamation of the verb and the incorporated subject pronoun. The first problem is solved since morphological spell-out of the amalgam of a subject pronoun and a verb varies as a function of the conjugation class (*-are*, *-ere* or *-ire* and a few irregular verbal paradigms) to which the verb belongs. The second problem is also solved since one need not commit oneself to subject pronouns having any particular forms, as they are incorporated into the verb. The issue of different forms of the subject pronoun depending on the verb stem hence does not arise.

If this view of NS is correct, then there is simply no need for a NS parameter. Theory of grammar should then not contain such a parameter, on parsimonious grounds. What of null argument languages (NALs) like Chinese and Japanese, where both subjects and objects may be phonetically null? As evidence for V-to-I verb movement in these languages and verbal inflection for person and number are lacking in these languages:

(48) a. Zhangsan zǐ-xì-de kàn nèi-běn shū.
Zhangsan detail read that-CL book
'Zhangsan is carefully reading that book.'

b. *Zhangsan kàn zǐ-xì-de nèi-běn shū.

(49) Wǒ/nǐ/tā/wǒ-mén/nǐ-mén/tā-mén lái.
1SG/2SG/3SG/1PL/2PL/3PL come
'I/you/we/you/they come or he/she/it comes.'

Law (1993) suggested that phonetically null arguments in these cases are possibly due to the independent conditions on *use* of pronouns. In these languages, it is almost impossible to use pronouns to refer to inanimate objects; use of demonstratives for these cases is the norm:[11]

(50) Wǒ zúo-tien mǎi-le yì-běn shū.
I yesterday buy-ASP one-CL book
'I bought a book yesterday.'
a. nèi-běn shū hén yǒu qù.
that-CL book very have taste
'That book is very interesting.'
b. ?hén yǒu qù.
very have taste
'It is very interesting.'
c. *tā hén yǒu qù.
3.SG very have taste
'It is very interesting.'

It is perhaps the unproblematic recovery of inanimate referents from the discourse context that induces the use of null pronouns for animate referents as well. If this is correct, then theory of grammar should not contain even a null argument parameter, for the same reason why it does not have a NS parameter.

2.4. Identifying languages

There remains, though, the question of how a child would come to realize that the ambiant language is a NSL, a non-NSL, or a NAL. In fact, the last type of languages is most easily identified. If a language permits null object, then it necessarily allows other arguments to be phonetically null. That is, on the basis of examples like those in (51b) and (52b) the ambiant language is inevitably a NAL:[12]

(51) a. A: Zhangsan kàn-wán-le nèi-běn shū méi-yǒu?
Zhangsan see-finish-ASP that-CL book not-have
'Has Zhangsan finished reading that book?'
b. B: Kàn-wán-le.
see-finish-ASP
'He has.'

(52) a. A: Lìsì ài-bú-ài Máo zhǔ-xí?
Lisi love-not-love Mao chairman
'Does Lisi love chairman Mao?'
b. B: Ài.
love
'He does.'

In the absence of examples of the sort in (51b) and (52b), the learner would have no reason to suppose that the ambiant language allows null arguments. Identifying a NSL like Italian is also unproblematic, as evidence for the presence of an object pronoun is rather

strong. In contrast with NS, the presence of the pronominal object is prominent not only in simple cases like that in (53):

(53) a. non lo vedo bene.
not 3SG.MASC see well
'I don't see him well.'
b. la vogliamo.
3SG.FEM want
'We want her.'

but also in cases of clitic-doubling and participial argeement:

(54) a. Non, questo giornale non lo conosco.
no this newspaper not 3SG.MASC know
'No, I don't know this newspaper.'
b. Sì, le capsule le prendo sempre.
yes the capsuls 3PL.FEM take always
'Yes, I always take the capsules.'

(55) a. Non, non l' ho ancora comparto.
non not 3SG have yet buy.SG.MASC
'No, I haven't bought it yet.'
b. Sì, l' ho già invitata.
yes 3SG have already invite.SG.FEM
'Yes, I have already invited her.'

(56) a. Non, non li ho ancora comparti.
non not 3PL.MASC have yet buy.PL.MASC
'No, I haven't bought them yet.'
b. Sì, le abbiamo viste ieri.
yes 3PL.FEM have see.PL.FEM yesterday
'Yes, we have seen them yesterday.'

The absence of a pronominal object induces different participial morphology:

(57) a. Sì, ho già invitato Luisa.
yes have already invite
'Yes, I have already invited Luisa.'
b. Non, non ho ancora comparto i fiori.
non not have yet buy the pens
'No, I haven't bought the pens yet.'
b. Sì, abbiamo visto Luisa e Chiara ieri.
yes have see and yesterday
'Yes, we have seen Luisa and Chiara yesterday.'

A learner of Italian would therefore have ample evidence for the NS versus overt object asymmetry, and can identify it as a NSL like without any problem.

By contrast, children learning French would have no evidence for the subject/object pronoun asymmetry of the type seen in Italian, even though the distribution of object pronoun and the concomitant agreement paradigms are very similar to those of Italian. As shown in (58), an object pronoun may double an overt full noun phrase:

(58) a. Ce journal, je ne le connais pas.
this newspaper I 3SG know not
'I don't know this journal.'
b. Les capsules, je ne les prends toujours.
the capsule I 3PL take always
'I always take the capsules.'

and the presence of an object pronoun may trigger participial agreement as well:[13]

(59) a. Non, je ne l' ai pas encore prise.
no I 3SG.FEM have not yet take
'No, I have not taken it yet.'
b. Oui,je l' ai déjà peinte.
yes I 3SG.FEM have already paint
'Yes, I have already painted it.'

(60) a. Non, je n' ai pas encore pris la photo.
no I have not yet take the picture
'No, I have not taken the picture yet.'
b. Oui,j' ai déjà peint la porte.
yes I have already paint the door
'Yes, I have already painted the door.'

For the learner, the contrast between the examples in (53)-(57) and those in (58)-(60) is not the presence of the object pronoun and the agreement patterns, but rather the subject/object pronoun asymmetry. While the subject pronoun is obviously phonetically null in Italian, that in French is prominently present. The learner of French would thus notice that the subject may not be phonetically null, and that the language is not a NSL.

Lacking exposure to examples of the type in (51b) and (52b) that are observed in Chinese where both arguments may be phonetically null, and without evidence for the NS versus overt object asymmetry of the type seen in Italian, the learner would have no choice but to conclude that an ambiant language like English or HC is a non-NSL.[14]

2.5. Acquisition of phrase structure

The most interesting question for linguistic theory and acquisition theory is why children initially permit NS *regardless* the ambiant linguistic environment. In particular, as English does not allow NS, the fact that children learning it initially permit NS cannot possible be due to the linguistic input, but must be related to the initial state of the grammar. A logical possibility is that the grammar has some parameter that has NS as the initial value, as Hyams proposed. However, if my claim is correct in that there is no such parameter, which is desirable on parsimonious grounds, then how can we account for NS in the initial state of the grammar, especially when it occurs in languages like English that do not allow NS?

I would like to suggest that the reason why the grammar has NS in the initial state be related to the acquisition of phrase structure; more specifically, children at early stages of language development have mastered the structure for VP, but not that of IP. The lack of the IP-projection implies the absence of a SpecIP position for the subject, and hence the impossibility of a lexical subject.

A range of disparate facts in child language are correctly predicted in this view. The lack of INFL explains the absence of modals, auxiliary verbs and inflectional morphology child English (Brown 1973), if these elements in fact occur in INFL as standardly assumed (cf. Chomsky 1957, Emonds 1978, Zagona 1982 and Pollock 1989). If the German verb in right-periphery position as in (25) (cf. section 2.1) is indeed in its base-position (Koster 1975), then the OV order in early child German would follow directly from the lack of an IP-projection, there being no INFL position for the verb to move to.[15]

There are some reasons to think that acquisition of phrase structure proceeds from smaller units to bigger units, ie from smaller constituents to larger constituents. Although it is intuitively clear that acquisition develops from single syllable (*'chine* for *machine* Eric I) to what can be loosely called one-word (*baby* Gia I, *nother, umbrella* Kathryn I) to multi-words (*another clown* Eric III, *baby chicken* Gia III), it is not immediately obvious why children do not produce sequences of words that do not form a constituent. While we can consider the one-word stage to be the point where children perform the fundamental task of acquisition in matching phonetic matrices from the linguistic environment with syntactic categories, taken to be bundles of abstract features (±N, ±V, ±singular, etc), it is logically possible that children could produce sequences of two or more words that are formally non-constituents in adult grammar. Thus, children produce rather complex sequences like those in (61a), but do not go through a stage where expressions like those in (61b) could have been uttered given that they have acquired the individual words:[16]

(61) a. Why you want do that? (Eric V)
I ride my bike (Gia V)
Kathryn go get book (Kathryn III)
I turn the light in (Peter VI)

b. Why do?
ride my
Kathryn get
turn the

What this means is that phrase structure must be built piece-meal in that a category must project maximally with its internal structure before it can be put in relation to some other category. In other words, knowledge of complex structures is a function of knowledge of the constituent parts.

Along these lines, then, children must acquire the structure of VP before they master that of IP, since VP is an integral part of IP. We now have an explanation for NS in early child language. NS is possible at the early stage of development knowledge since the structure of VP has, but that of IP has not yet, been acquired. The lack of a SpecIP position follows directly from the absence of the IP projection; NS is thus an immediate consequence of the fact that there is no position for the subject.

3. Conclusion

In the foregoing sections, I argued that one can decide whether a grammatical prime is in the grammar by considering the empirical facts that bear on it. In particular, language variations are good testing grounds for the empirical bearing of a grammatical prime. I showed that learnability of an abstract grammatical prime does not tell us much about syntactic theory in that one cannot accept or reject it as part of the grammar on learnability grounds.

Let us now return to the table in (1), repeated here as (62):

(62)

	learnable	in the grammar	
a.	+	+	variations
b.	+	–	the null subject parameter
c.	–	+	universals, eg no movement of non-constituents
d.	–	–	eg surface filters

We have discussed three cases in (62a), (62b) and (62d). Let us now turn to the case in (62c) by considering the principle in (63):[17]

(63) X can be moved only if X is a constituent.

The principle in (63) is to capture the grammatical contrast in (64):

(64) a. John said that he would go to the store, and [gone to the store]$_i$ he has t_i.
b. *John said that he would go to the store, and [gone to]$_i$ he has t_i the store.

If *gone to the store* has the structure in (65), then the reason why one can move *gone to the store* but not *gone to* is because the former is a constituent, but the latter is not:

(65) [$_{VP}$ gone [$_{PP}$ to [$_{NP}$ the store]]]

How can a child learn the principle in (63)? The child is certainly not explicitly told that examples of the type in (64b) are impossible, and is instructed that only constituents may be moved. That is, the child has no direct access to the principle in (63) from the linguistic environment. If the principle cannot be deduced from linguistic input, then the only possible explanation for the child's knowledge of it is that it is part of his or her innate language faculty, this being the only logical alternative for the source of such knowledge. In other words, a grammatical prime may be in the grammar, even though it cannot possibly be directly deduced from the ambiant language.

If what we are interested in is whether a grammatical prime is in the grammar, then we should look from right to left in the table in (62). It is quite easy to see that learnability does not bear on the issue. A prime may be in the grammar, whether it can be learned or not. This conclusion is not at all surprising. As Chomsky has pointed out, it is pointless to study the issue of language learning if we have no idea what it is that has to be learned. Now, if what has to be learned is *prior to* how it is learned, then one cannot answer the question of what constitutes grammar by appealing to learning.

This is of course not to say that learning has no independent interest. Insofar as children have to be exposed to some linguistic environment in order to attain the final state of grammar, theory of learning will tell us how such a process develops. But it is not revealing about the primes that constitute grammar.

Notes

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[1] As we will see, the constructions we discussed here are learnable *in principle*. What is meant by unlearnable in (1) is that the learner has no access to a learning procedure.

[2] In terms of current phrase structure, the DFCF would be formulated as a constraint banning an overt *wh*-phrase in the Spec position of an overt complementizer.

[3] The filter in (4) is to distinguish (i) and (ii):

(i) a. *Who$_i$ did you wonder [whether t_i saw Bill]
b. *Who$_i$ do think [that t_i saw Bill]

(ii) The man [O_i [that t_i saw Bill]]

The filter in (5) is to force the presence of *for* in the examples in (iii) and (iv):

(iii) a. His plan *(for) Bill to win.
b. It bothers me *(for) Bill to win.
c. It is illegal *(for) Bill to win.
d. I want very much *(for) Bill to win.
e. There is someone at the door *(for) you to play with.
f. *(For) John to take the job would be preferred.

(iv) a. What wage$_i$ would you work [for t_i] [*(for) your kids to have a chance to go to college]
b. Who$_i$ would it [bother t_i] [*(for) your kids to have a chance to go to college]

The filter in (6) is to rule out the examples in (v):

(v) a. *that John is here.
b. *whether John is here.
c. *who John saw.

[4] Formally, one might want to make use of a [WH] feature, eg *that* has a [–WH] feature, and hence disallows a *wh*-phrase in its Spec. It is not my immediate concern here to dwell on the technical detail.

[5] Bayer (1984) points out that when *wo* is present, the "unmarked" relative pronouns unshaded in (i) may be dropped:

i)

	masc	neut	fem	plur
NOM	*der*	*des*	*die*	*die*
ACC	*den*	*des*	*die*	*die*
DAT	*dem*	*dem*	*der(a)*	*dene(n)*

For the " marked" ones falling in the shaded areas, they may be dropped just in case they are phonetically identical to the determiner of the noun phrase which the relative clause modifies.

[6] When the relative pronoun drops, the structure of a relative CP would be a single CP-projection as in (ii):

(ii) ... $[_{CP}$ wo [$[_{IP}$ ...

The structure in (ii) is parellel to that in (11b).

[7] Along these lines, then, some cross-linguistic variations are not due to grammar-internal properties, but rather are driven by external linguistic environment. As languages vary with respect to the DFCF, it cannot be that some grammar-internal property that allows or disallows COMP to be doubly filled. Moreover, there seems to be no other property that can be linked to doubly filled COMP (cf. German, a language that is very much like Bavarian, is like English with respect to the DFCF); therefore, it does not appear likely that it is some particular grammar-internal property that gives rise to doubly filled COMP. If this is correct, then variations with respect to doubly filled COMP, if they are indeed due to the external linguistic environment, can only be taken to be accidental facts. We have seen that theory of grammar can very well accommodate these facts by allowing building of phrase structure in accord with the independent properties of the elements constituting that phrase structure.

An important issue that immediately arises is how theory of grammar-external variations can explain why the observed facts exist, but other logically possible variations do not. While it seems clear that grammatical theory should be sufficiently constrained so as to limit the possible variations (eg, no language may have nouns taking verbs as complements), it is not immediately obvious why some specific variations exist but not others. For instance, why should it be that double-CP structures are possible (to the extent that my proposal can be sustained), but triple-CP or double-IP structures, are not known to exist? An adequate answer to this question has to await future research.

[8] Hyams (1992) claimed that her earlier analysis of NS has the following problems and suggested a new analysis in terms of Jaeggli and Safir's (1989) theory of NS (cf. section 2.2):

(i) a. The development of tense accompanying the transition to a non-NS grammar is unaccounted for.
b. The emergence of infinitive marker *to* alongside modals is not predicted.
c. Modals infrequent initially.
d. NS are "unidentified."

However, I do not think that these are really problems for Hyams' (1989) analysis. First, if tense is in INFL as standardly assumed, then the emergence of non-NS alongside tense morphology would be just as expected, since tense morphology would govern PRO in INFL. Second, the emergence of the infinitive marker *to* would be predicted to be at the same time as that of modals if it is assumed to be in INFL, a not unreasonable assumption given that tense or finiteness of a verb is marked either bby inflectional morphology or an infinitival marker like*to*. Third, as Hyams (1992) also pointed out, the infrequent use of modals in the initial period might be due to lexical learning. Fourth, there is no independent justification for "identification" of null pronouns. The referent of a null pronoun is recoverable from discourse context to the same degree as the referent of an overt pronoun is. It is then uclear why null pronouns must be "identified" any more than overt pronouns are.

[9] The strong forms of the pronoun may be used by themselves as answers to a *wh*-questions, in contrast with weak forms of the pronoun (Koopman 1984:74):

(i) a. àlÓ Ò wà sàká là?
who he-R want rice WH
'Who wants some rice?'

b. àmI/*n.
me (strong form)/I (weak form)
'me.'
c. ànyI/*à.
us (strong form)/we (weak form)
'us.'

Like the weak forms, the strong forms do not trigger subject verb agreement either. Based on facts about coordination and the strong/weak distinction for object pronouns, Koopman argues that the weak forms are not syntactic clitics but are phonological clitics. In particular, there is no empty category related to the clitic in the syntactic representation. That is, Vata is not a NSL.

[10] Italian certainly has a series of subject pronouns that bear stress: *io* 'I', *tu* 'you, sg', *lui* 'he', *lei* 'she', *noi* 'we', *voi* 'you, pl', *loro* 'they'. They may, though need not, co-occur with the verb. One property that they share with stressed pronouns cross-linguistically is that they may not be bound as variables. Thus, the stressed pronoun in (ia) must be construed as referring to a specific person, not as bound by the quantifier *everyone*, and the second conjunct of the example in (ib) may not be interpreted as meaning every student has the self-belief of being smart; that is, the stressed pronoun may not be bound as a variable (cf. Montalbetti 1984):

(i) a. Everyone thinks that HE is intelligent.
b. Every teacher thinks that HE is smart, and every student does too.

[11] The slightly less than perfect status of (50b) is perhaps due to discourse factors. It is not immediately clear if the phonetically NS can pick up the discourse topic as set up by the preceding sentence.

[12] It is worth pointing out that the answers to the questions in (51a) and (52a) containing an object pronoun do not sound as natural. They are either totally unacceptable or inappropriate in the given discourse context:

(i) a. B: *Kàn-wán-le tā
see-finish-ASP 3SG
'He has read it'
b. B: ??Ài tā.
love 3SG
'He loves him.'

[13] It is of course impossible to tell the grammatical gender of the pronoun when it precedes an auxiliary beginning with a vowel, due to the elision of the vowel of the pronoun. For the point here, I assume that the pronouns in (59) have a discourse antecedents that are feminine gender, and hence have the same gender as well.

[14] There is of the question of why HC does not allow phonetically null arguments like Chinese. Although I have no satisfactory answer to this important question at this point, it seems to me that labelling languages like Chinese as discourse-oriented with some topic-prominent properties like discourse-binding of anaphors, topic-comment structures with no gap (Li and Thompson 1981, Huang 1984) does not really address the issue in an adequate manner either. It is not obvious that these properties bear on the issue of null arguments. Even if null arguments are considered to be discourse-bound in the same manner as that of discourse anaphors, it is not clear why the phonetic matrix of the

pronoun should matter. The bearing of topic-comment structures with no gap on null arguments is even more obscure.

[15] Although examples with lexical objects and null subjects are overwhelmingly common, those with a lexical subject are not unattested. Thus, the examples in (i) are found alongside those in (ii) (Bloom, Lightbown and Hood 1975):

(i)	a.	play it	(Eric II)
		eat juice	(Eric III)
		find it	(Eric III)
	b.	eat piece	(Gia II)
		fix dat	(Gia III)
		ride truck	(Gia III)
	c.	touch milk	(Kathryn I)
		untie this	(Kathryn II)
		want go get it	(Kathryn III)
	d.	Pull it	(Peter III)
		turn it	(Peter III)
		Push the button	(Peter III)

(ii)	a.	This rides	(Kathryn I)
		man ride bus	(Kathryn I)
		Kathryn read this	(Kathryn II)
		Kathryn do it	(Kathryn II)
		lamb goes	(Kathryn II)
		Kathryn sit down	(Kathryn II)
		I put this in there	(Kathryn III)
		foot goes over there	(Kathryn III)
	b.	I find it	(Eric III)
		man sit blocks	(Eric III)
		I need that	(Eric III)
	c.	Gia ride bike	(Gia III)
		Mommy work	(Gia III)
		Gia want Daddy	(Gia III)

Most analyses of NS in child language thus appear to have abstracted away from these examples. What is clear, however, is that children have NSs much more often than lexical subjects at stage I. A few exceptions to this observation are possibly in the data of Kathryn, shown in (iia) above. The claim that children permit NS would appear to hold for a very brief period of time, perhaps as a matter of a few weeks.

[16] One might argue, however, that the utterances children make must correspond to semantic or conceptual units, explaining why all the examples in (61b) except *Kathryn get* are unattested.

Along these lines, one could then conceivably explain NS by saying that the combination of a verb and an object is semantically or conceptually a property, but that of a verb and a subject is not. The problem with this view is the co-existence of relative clauses where a subject is relativized and those where an object is relativized:

(i) a. The car that Kathryn got
b. The car that hit Kathryn.

The combination of a subject and a verb in the relative clause in (ia) is conceptually as much a property as that of an object and a verb in (ib). Thus, the reason why expressions like *Kathryn get* are not found in the data cannot be explained by claiming that it is not a conceptual or semantic unit (cf. (ia)) above.

[17] Note that the universality of the constraint in (63), as well as principles like Subjacency or the ECP that I mentioned in the introduction, rests entirely on empirical grounds, whatever they may be. The relevant point here is that whatever is responsible for the contrast in (64) or grammatical differentiations of Subjacency or ECP violations is not learnable.

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