RUNNING HEAD: SCOPE AND BARE NOMINALS

Scope and the Structure of Bare Nominals: Evidence from Child Language

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1. Introduction

Bare nominals differ from other nominal expressions in that they lack scope ambiguities:

(1) a. Every fireman went to a house

b. Every fireman went home

Example (1a) illustrate the ambiguity typical of indefinites: either every fireman goes to a different house or there is a single house which they all visited. These are, respectively, the narrow scope interpretation represented in (2a) and the wide scope interpretation represented in (2b).

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(2) a. For every *x*, *x* a fireman, there is a *y*, *y* a house, such that x goes to *y*

a. There is a *y*, *y* a house, for every *x*, *x* a fireman, such that x goes to *y*

In contrast, the bare (determinerless) NP is always interpreted with narrow scope: (1b) can only mean that each fireman went to a separate house, specifically, their own:[1]

(3) For every *x*, *x* a fireman, *x* goes to *x*'s house

This type of bare noun construction consists of a lexically restricted set of singular nouns which appear without determiners. They are characterized by having an inherently bound interpretation for the possessor, as represented in

(3) (Jackendoff, Mahling et al. 1993; Roeper 1993; Williams 1994; Culicover and Jackendoff 1995; Roeper to

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1 An exception to this is the case of pragmatic control of the possessor role. In
(i) John is coming home (to visit us)
the implicit possessor is not controlled by the subject by the speaker (See PL& roeper for further discussion.)

appear) . We will call this construction the inherent possessor construction (IPC). Although (IPC) is idiomatic, in the sense that the set of nouns involved is restricted and varies from language to language, it is also regular and systematic, in the sense that the occurrence of bare singular implies an obligatory bound reading for the possessor of the NP. So, we argue that the special interpretation of the bare noun 'home' special depends on the fact that it is a bare singular and not simply because it is an idiom. Consider the contrast in (4), where, clearly, the anaphorically bound reading of the possesor is different from the narrow scope interpretation of the indefinite.

(4) a. Every fireman sees a home

b. Every fireman sees home

The implication in (4b) is not only that each fireman sees a different home, but specifically that it has to be his own home.

How do children acquire knowledge of this structure, and of the restrictive interpretation it exhibits? Research on the acquisition of quantification debates the question of whether children have full access to a full grammar of

quantification (Roeper and deVilliers 1993; Philip 1995; Philip and Coopmans 1995; Crain, Thornton et al. 1996; Drozd 1996; Philip 1996) . The experiment presented here contributes to that debate in exploring how sensitive to the syntactic properties of nominal projections children are in contexts where the interpretation of these nominals interacts with universal quantifiers.

In this chapter we argue that:

a) the semantic interpretation of bare nominals depends on their minimal syntactic structure: IPCs are not DPs but NPs;

b) minimal, economic representations are universal; and

c) children's initial representation of phrases follows economy of projection.

These claims leads to a clear acquisition prediction: despite the 'idiomatic' nature of IPC, children will never go through a stage in which they ignore the obligatory bound reading of the possessor. The purpose of the study presented in this paper is to test children's interpretation of bare nominals in IPC.

This chapter is organized as follows. Section 2 discusses the syntax of bare nouns and the inherent possessor construction. Section 3 presents an experiment testing children's interpretation of the bare noun construction. Section 4 discusses the consequences of our analysis for linguistic theory.

2. Bare nouns and the inherent possessor construction

2.1 The question of structure

The first issue to explore is the appropriate representation of bare nominals. Leaving aside bare plurals, which are standarly assumed to be DPs, three possible structural representation are possible in principle for bare singulars in IPC: DPs, NPs or incorporated nouns. In what follows we argue that the syntax of bare nominals determines their special interpretive properties. Eonomy considerations allow minimal projections as an option of UG, and that nominals in IPC are a minimal nominal projections different from full DPs.

2.1 Against an incorporation analysis

The idiomatic nature of IPC raises the possibility that IPC consist of incorporation of the bare noun to the verb that selects it. Both syntactic and semantic considerations lead to rejecting this hypothesis.

The first argument is semantic: the interpretation of the nominal is different from clear cases of incorporation, such as compounding. Like incorporated nouns in compounds, IPC nominals are lexical restricted. However, the referential restrictions described above apply only to IPC and not to compounding. Compare the interpretation of the incorporated *home* in *home-*

cooking, with the interpretation of *home* in the bare noun expression *cooking at home*:

(5) John likes home-cooking (John's home or anybody's)

(6) John likes cooking at home (only John's)

The main characteristic of IPC is that the possessor role of the complement noun is syntactically bound. This is different from the generic or underspecified interpretation characteristic of incorporated nouns.[2]

A second property of IPC is that while modifiers are excluded, as will be discussed in section 2.2, nominal complementation is allowed. Consider the complements *in the movie* and *for the president* in (7):

(7) a. John lost [interest in the movie]

b. John lost [respect for the president][3]

c. John stayed [home in montana]

From this we infer that the structure must be at least an NP projection.

Finally, it must be noted that the bare nominal may be fronted, a possibility excluded in analysis proposing incorporation to the verb:

(8) a. Home, I do not intend to go

b. Back home, I will never go

c. Interest in the movie, we all seem to have lost

2.2 Choosing between an NP and a DP analysis

The above arguments allow us to eliminate an incorporation analysis of IPC. This leaves two logical possibilities: one possibility is that IPC nominals are a fully specified DP projection or that they are not a full DP, but a lower,

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[2] While home-cooking is perhaps an idiom, we can create a new compound and we find the same freedom from possessor binding arises. Consider the contrast in (i) and (ii):

(i) John likes home-cataloguing (anywhere)

(ii) John likes cataloguing at home (at his own house)

[3] Some adjectives are allowed:

(i) has great respect for the president

(ii) has lost all interest in dinosaurs

underspecified nominal projection instead. Let's consider some structural arguments regarding these hypothesis. The first is that, although IPC nominals allow complements, it disallows relative clauses, and most modifiers are not permitted:

(9) a. Ellen visits a certain home

b. *Ellen visits certain home

c. Ellen visits a home that sits near the lake

d. *Ellen visits home that sits near a lake[4]

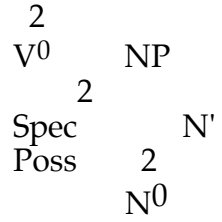
Home with the indefinite allows modification by *certain* and by the relative clause. Assuming that relative clauses and other modifiers are attached at the functional level of nominal projections, DP, etc., but that complements remain

inside the lexical projection, NP (Partee

[4] Other adjectives such as *great, complete,* and *all* can be added:
(i) he had great interest in dinosaurs.
(ii) He lost some interest in dinosaurs.
(iii) He had complete control of his faculties
The main contrast relates to specificity. Contrast (ii) and (iv):
(iv) *John lost particular interest in dinosaurs.

1989; Grimshaw 1991) , we can use these facts as a test of structure. The presence of complementation suggests that the IPC is a nominal projection and not an incorporated noun. The impossibility of restricted relatives and (most) modifiers suggests that IPC is only a minimal, underspecified projection.

(10)



A variety of syntactic properties follow from the NP claim

(Partee 1989; Roeper 1993; Culicover and Jackendoff 1995) . First we predict generality: many bare nouns will automatically have this property:

(11) John has hope
Mary made progress
Sue has envy
Lucy has control
John felt shame

Hundreds of examples can be presented. In each instance a kind of 'inherent' possession is implied. We argue that this is structurally represented, because other syntactic effects are present. Possessives are excluded in many instances:

(12) He took hold of himself/ *he took his hold of himself
John lost time/ *John lost his time
Dan made love/ *Dan made his love
Mary made progress/ *Mary made her progress

From our view, this is so because these nominals fail to project a DP, and there is no Spec of DP for the overt possessor to land.

Second, we predict that NP is not a boundary for extraction while DP is a boundary (deVilliers and Roeper 1995; Roeper to appear) :

(13) a. How does John like *t* [$_{DP}$ the advice **t* from his mother]?

[=> 'very much'meaning 'how he likes it]

[not interpreted as 'how is the advice?']

b. How does John like [$_{NP}$ advice t from his mother] ?

[=> 'with no ulterior motives' , i.e, 'how is the advice?']

The last property, revealed by Jackendoff et al (1993), is that expressions of this sort obey Principle A of the Binding Theory and do not extend beyond clause

boundaries. Compare the interpretive differences between overt possessors and the possessor in the IPC:

(14) a. John told Bill to work on vacation (=on Bill's vacation)

b. John told Bill to work on his vacation (=free)

(15) a. John told Bill to sing at work (=Bill's work)

(b). John told Bill to sing at his work (=John's or anyone's work)

Distributionally, this null possessor patterns with anaphors, while the overt possessor patterns with pronominals. The overt possessor can refer to either John or somebody else. The possessor in the IPC sentence behaves like an anaphor that it must be obligatorily bound to the subject. Besides obeying locality, as shown above in (13) and (14), it obeys c-command, as shown in (15):

(15) John says Peter likes cooking at home (only Peter's home)

John says Peter likes cooking at his home (either Peter's or John's home)

Peter's fiancee went home (Peter's fiancee's home, not Peter's)

These locality effects are predicated on the absence of any overt determiner, and is not just relevant for overt possessors:

(16) a. John went to the school (anyone's school)

b. John went to school (John's school)

Last corollary is that the interpretation of possessord depends on syntactic control, and therefor it will not vary with pragmatic factors. Note that we can create a context in which pragmatic effects would strongly favor a non-anaphoric disjoint reading (as in 17a), but the anaphoric reading remains (17b) as this example (17c) reveals:

(17) a. John lost the audience's interest

b. John lost interest (=John's interest)

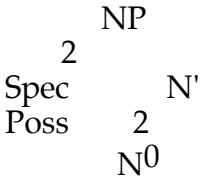
c. the audience was enthralled, but as John's voice turned to a monotone, John lost interest.

(anti-pragmatic = still John's interest)

In earlier work (Pérez-Leroux and Roeper 1996), we argued that the binding behavior of null possessors follows from the assumption that they are an anaphoric null pronominal PRO. We suggested that the overt possessor determiner (which is itself a pronominal) can bind the null possessor argument. In the IPC, since there is no immediate binder, the null possessor must be bound inside the first clause containing home, precisely the effects illustrated by (14).

Our proposed representation parallels other analyses based on different perspectives (Stowell 1989; Hestvik 1992; Avrutin 1994; Chomsky 1995; Munn 1995; Roeper to appear).[5]

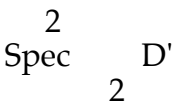
[5] For instance, Munn (1995) has proposed that a second possessive position within NP exists in order to capture "generic" readings and to account for double-possessives of the form:
(i) Pierre Cardin's men's clothing
Munn (1995) argues for a similar structural representation distinguishing between regular possessives (as in (i)), and modificational possessives (as in (ii)):
(i) [[the men's]$_{DP}$ clothing]
(ii)[the [men's]$_{NP}$ clothing]
He argues that the latter are not compounds because one can have intervening APs. The modificational NP position, we claim, includes the clause bound possessor. We argue that a pro-anaphor can appear in this position as well with the consequences just outlined.

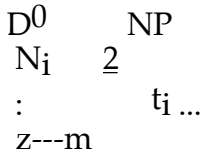
(18)


This proposal stands in contrast to the idea that all anaphoric connections are represented at the DP level

(Longobardi 1994; Noguchi

1995) .

(19)




Such accounts are natural under the Universal Base assumption. Not only factual assumptions, but also Feature-based theories of Bare Phrase Structure, favor the possibility that both NP and DP can be generated. As we argue below, an economical theory of acquisition predicts that NP can be generated without triggering evidence while DP represents language-particular differences.

2.3 Bare N's across languages

Longobardi (1996) considers a different approach to the syntax of null genitives. Advocating for a parametrized account, he unifies the 'construct state' construction of the semitic languages and the postnominal possessor construction found in some Romance languages. The Italian paradigm in (20a) shows the obligatoriness of determiners with the standard possessor-noun order:

(20) a. la mia casa/*mia casa

b. casa mia/ *la casa mia

In contrast, in (20b), with a postnominal possessor, the determiner is impossible. Longobardi shows how this construction shares many features with the semitic construct state nominal structure:

a) both nominal constructions have noun in first possition with strict adjacency between noun and postnominal genitive

b) in both constructions determiners are impossible and overt, prepositionless genitive is required.

In his proposal, both the semitic construc states as well as the N-poss structure of Romance are derived by a process of raising of the head N to D. This derivation solves both the obligatory absence of determiner as well as the exhibited word order in Semitic and Romance.

Following his earlier work

(Longobardi

1994) , Longobardi (1996) argues that this proposal could reduce the stipulated distinctions between proper nouns and common nouns. Proper nouns, under this view, are also derived by N to D movement. In his view, this approach could be extended to all bare nouns. In this system, N-raising is parametrized with respect to how the movement

operates, overtly or covertly, and by adjunction or substitution. This parametrization aims to account for some of the characteristics he attributes to the Romance postnominal genitive construction:

a) lexically restricted

b) only singular nouns

c) not modifiable by restrictive relatives

d) special semantics: rigidity in designation, and transparency in intentional contexts

One can see how this description is not far from the relevant facts of IPC. From this description of the Romance postnominal genitives, there is only a step to extend this analysis to the English bare nominals, as he does:

> "after all, Pro is licensed in English LF construct state with home, as we have seen above. The minimal descriptive difference within English syntax seems thus to be that raising of an object-referring expression licenses genitive Pro, but adjunction of a regular common noun to an operator in D does not."

(Longobardi

1996)

There are, however, some problems with this extension. The most salient is that while properties a)-c) clearly apply to the IPC construction, d) does not. IPC, as shown in Longobardi (1994) for English bare plurals, can have the interpretation of an obligatory narrow scope existential, given the proper antecedent for the null genitive. If the antecedent is a referring expression, the null genitive will have the appearance of rigid designation: in (21) *home* seems to function as a name for a unique location, but this appearance is falsified by (22).

(21) John went home.

(22) Everybody went home.

Here, *home* is not a singly specified unique location, but a set of places each specifically linked to particular cases of the variable. If Longobardi is correct on his assumption that LF N-raising entails that a common noun acquires the semantics of names, it is clear that IPC cannot be an instance of N to D raising.

Our approach can easily handle the different readings of bare *home*. We argue that the semantics of the bare noun is dependent on the antecedent of the null genitive. A quantified expresion for an antecedent will result on the following representation:

(23) for every *x*, *x* a person, *x* goes to [*x* home].

A name for an antecedent results in name-like properties: (21) is interpreted as (24):

(24) John goes to [John's home]

Thus the unique referent of home in this case is an epiphenomenon: the apparent rigid designation entailed in (23) is the effect of a combination of the specific linking of *home* to the antecedent of the null genitive, and the referential status of its antecedent, *John*.

In our approach, all the syntactic and the semantic effects of the IPC depend on its status as a bare singular, which makes a reduced nominal projection and not a DP. Thus, we predict generalizability of these effects to other bare nominal idioms as well as to languages, and not the rigid parametrization that Longobardi's account predict.[6]

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[6] This differs from a semantic approach that would make *home* an adverbial location part of a predicate, assimilating this behavior to cases like:
(i) Every boy arrives
which entails a set of arrivals. We would argue against this view because the same relations can be found in cases with a PP.
(ii) Every boy stood near home
Here one might continue to argue that the PP is "part of the predicate", but the inner structure of the PP surely requires a nominal object. That is, *home* cannot be assimilated to an adverb reading found in:

Our theory does not specify a particular set of nominals that follow this behavior. It only claims that if a language has a bare nominal idiom, their external argument would behave as an anaphor. Contrasting English with other languages will show that these predictions are correct. Consider the follow examples with the bare nominal *respect* .

(25) John lost respect (John=experiencer)

Here the subject of the clause obligatorily binds the experiencer argument of the derived nominal respect (see Roeper (to appear), for extensive evidence on argument control). This means that the experiencer is projected onto the possessor position, and therefore, the *of*-phrase cannot occur because it also refers to the external argument already projected.[7]

(26) John lost respect for the president/*of the president

If a DP is present, the possibilities revert:

(27) John lost the respect of the president/*for the president.

Similar languages (or even closely related dialects) vary as to which nouns are allowed in IPC. Spanish allows a more limited set of lexical items. *Casa* ('home') is allowed as a bare noun, but *respeto*'respect' is not. As our theory predicts, the external argument of *respect* in the English idiom is bound, but the external argument in corresponding Spanish phrase is free. In consequence, as shown below, *respeto* can take both an experiencer or a theme:

(28) Juan perdió el respeto del presidente/ por el presidente

J lost the respect of the president/for the president

(iii) Every boy went quickly

[7] *Of* phrases for nominals can represent various arguments. Derived nominals exhibit control but gerundive nominals are free:

(i) the help of John (agent, not theme)
(ii) the helping of John (either agent or theme)

Bare *respect* cannot have an *of* -phrase referring to the experiencer:

(iii) *lost respect of himself

This example clarifies several facts. First, that the effects of the bare noun construction pertains to a wide class of nouns which goes beyond the most common locative cases: 'go home', ' be at school', 'go to work'. Second, that the locus of parametrization is simply lexical

(Webelhuth

1989) . both Spanish and English exhibit the same interpretive effects with *home/casa,* where determiners can be absent. In very similar idiomatic phrases such as *lose respect/perder el respeto*, the presence or absence of the determiner is the deciding factor with respect to the behavior of the genitive, and not the typology of genitives in the language (Spanish, like other Romance languages and unlike English, lacks prenominal genitive

phrases). As predicted by our analysis, the crucial structural feature is the presence or absence of a DP projection, and not other language specific aspect of genitive assignment.[8]

The semantics of bare nouns in Norwegianis more dramatic evidence in favor of this approach. Hestvik (1992) points out that Norwegian genitive pronouns are obligatorily disjoint:

(29) Norwegian

a. $John_i$ liker [NP $hans_{*i/j}$ kohne]

J likes his wife

b. $John_i$ liker [$hans_{*i/j}$ bil.

J likes his car

Overt possessors in Norwegian are disjoint, suggesting that the pronoun has not raised to a DP.

Contrast this with English,where the DP operates as a binding domain,:

(30) English

John lost [DP his wallet]

Principle B is not violated and coreference is allowed.

2.4 The interpretation of bare nouns

Thus far we have argued that the structural status of the bare nominal is the relevant property in predicting its syntactic properties and its interpretation. There are interpretive properties that go beyond binding of the possessor. E.

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[8] Dialectal variation can be easily accounted for this way. So, The difference between the case of American English which disallows (i), and of British English, which accepts it, are possible without positing a syntactic parameter.

(i) go to hospital

What our theory predicts is that if a dialect has (i), there will be interpretive differences with (ii)

(ii) go to the hospital

, and that such differences will be exactly as predicted: the external (possessor) argument is controlled. (i) only means to be in thehospital as a patient, and not as a worker or a visitor, whereas (ii) is unrestricted.

Benedicto (p.c.) suggests that a crucial effect of underspecified NP projections is that they cannot enter into further binding chains, i.e., bare NPs cannot be antecedent to DP pronouns. Here again the different behavior of DPs and IPC nominals emerge:

(31) a.**Everybody went home and burned it

b. Everyone went to the/a home and burned it

(32) a. *Everybody went to school and threw a stone at it

b. Everybody went to the/a school and threw a stone at it

The bare nouns in (31a) and (32a) contrast with DPs in that they fail function as antecedents to the pronoun *it*.

One could argue that the effects above are not related to the structure of the bare noun, but to the fact that bare *home* is a locative, and that *it* is the wrong pronominal to substitute it for. Observe the grammaticality of (33):

(33) John went home and B went there too

This solution to the absence of pronominalization has three limitations. First, it simply cannot account for the cases in which the bare nominals are not locations.

(34) a. Everyone saw a home, and threw a stone at it

b. *Everyone saw home, and threw a stone at it

(35) a. ??John lost interest in dinosaurs and never regained it

b. John lost his insterest **in dinosaurs** and never regained it

(36) a. ??John lost respect and was never able to regain it

b. John lost their respect and was never able to regain it

It is clear that in (34)-(36), the bare nouns *home, respect* and *interest* are direct objects and not locatives, yet in the absence of overt determiners they are unable to serve as antecedents.

Second, *there* pronominalization is grammatical with *home* only when this noun is linked to a referential antecedent. *There* is unable to represent the variable nature of the bare nominals. This behavior is apparent in VP ellipsis environments, where IPC nominals have only the sloppy, narrow scope interpretation. This is illustrated by the contrast between (37a) and (37b):

(37) a. John went home and Bill did too (sloppy reading)

b. John went to a home and Bill did too (ambiguous)

VP ellipsis with *a home* is ambiguous between the sloppy and the strict reading of the conjunct (i.e., the interpretation in which John goes to a home and Bill to another, versus the one in which Bill goes to the same home as John, respectively). Bare *home* can only have the sloppy reading of the conjunct. This is not unexpected: the strict ambiguity interpretation parallels wide scope interpretation of indefinites, which implies an existential reading, in which there is a home, such that both John and Bill went to that home.

Furthermore, note that bare *home* cannot be pronominalized by *there* when it is linked to a quantifier. Consider (38):

(38) a. every boy at school went home, and the teachers did too

b. *every boy at school went home, and the teachers went there too

Example (38) is ungrammatical as a result of the incompatibility of *there*-pronominalization and the bound variable nature of *home*.

There pronominalization in quantifier environments is only possible under a group interpretation of the quantifier: (39) not only requires the strict reading of the VP, but also imposes a collective interpretation of *home*, similar to (40):

(39) Everybody went home, and Bill went there too

(40) They all went home

The distributive interpretation (each person to a different house) is not compatible with *there*-pronominalization.

The impossibility of pronominalization of bare nouns is easily explained under our assumption that they are not full DPs, given that English pronouns are DP pronouns . *There* pronominalization of *home* in (33) is possible when *home* then becomes a unique location by virtue of the referentiality of its antecedent. The question that remains is why, in the presence of a quantifier, are bare nouns inherently variable? In other words, what is it about the structure of bare nouns which prevents wide scope interpretation? Our analysis of IPC nominals as underspecified projections has a clue as to their variable interpretation. It is the anaphoric, bound nature of the null possessor which forces the variable representation of the nominal. Note that the bound nature of IPC goes beyond the standard weak interpretation of narrow scope indefinites:

(41 a. Everybody sees a home

b. Every x, x sees a home

c. Everybody sees a different home

The narrow interpretation of the indefinite phrase *a home* in (41a), represented in (41b), is the only interpretation available for (41c), where the adjective *different* exclude any possibility of wide scope interpretation. Note that in this case the indefinite has a 'weak' interpretation

(Hoop

1992) . All that (41a) asserts is that the intersection of set of things that are homes and the set of things that each individual sees is not the empty set. Bare nominals are different from indefinites on precisely this point: (42) implies not just any pair of homes and individiduals, but a specific pairing.

(42) Everybody sees home

In (42) *home* has what we call distributed definite reference. It is like narrow scope of indefinites in that it means one home for each *x* member of the set denoted by everybody. In IPC, the home must be a specific home, associated with each value of *x* by virtue of the possessor-possessed relation.[9] Binding of the implicit anaphoric argument of the bare nominal is the crucial factor here. The lexical representation of the phrase 'go home' contains an open variable, as shown in (43):

(43) *x* goes [*x* home]

This representation encodes the variable as linked to a higher c-commanding variable. The implicit possessor in IPC nominals is a formal variable, and this variable is obligatorily represented as dependent on a higher

[9] It can be the possessor, or whatever any other thematic relationship betwen the null argument and the bare nominal.

variable. If that slot is filled by a quantificational element, the quantifier will always be in a higher position, binding the variable in IPC. The pairing of the universal quantifier and *home* in (42) happens directly: no existential quantifier is independently represented, as in the case of indefinites. As a consequence, there is no possible scope interaction, and the universal quantifier always bind the IPC nominal.

3. Economy of projection and acquisition theory

3.1 Economy and acquisition

Our account of the NP/DP distinction leads to a more explicit acquisition theory. We argue that the properties of NP are universal, while those of DP carry language particular features. Therefore, the child begins with NP and adds DP features in response to exposure to sentences with language-particular interpretations. Thus it is the case that definite articles behave differently in Romance than in English. One says *Il lave le main* 'He washes the hand', in French, meaning 'his hand'.

Language particular information is not exclusively associated with lexical items, like determiners. For instance, English bare plurals are unrestricted in comparison with their Romance counterparts. Longobardi (1994) shows that Romance bare plurals only have an existential interpretation but lack the generic interpretation also available in English.[10] Another case is that of bare nominals who raise to DP to acquire a +specific interpretation, such as Italian *casa mia*. This means that the child must be sensitive to the interpretation of the bare noun in order to decide whether a higher DP must be generated to which the bare N

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[10]English bare plurals are ambiguous:
(i) I only excluded old ladies.
means both that some old ladies were excluded (existential interpretation), and that old ladies in principle were excluded (generic interpretation). In Romance, only the first interpretation is available:
(ii) Solo excluí señoras mayores.

moves in order to acquire specificity. It is the features associated with DP, under this hypothesis, which carry language particular information, and not those associated with NP. We will now generalize this argument to a general theory of economy in acquisition.

An intuitive version of economic acquisition is the following:

a. The initial state reflects an economic representation (e.g. NP).

b. Non-economic representations carry language particular information (e.g. DP).

The initial state can be characterized as a set of default representations which can be called a Minimal Default Grammar (MDG). The MDG can be projected without triggering information (beyond lexical items).[11] This leads to two further claims:

c. Defaults represent economic representation

d. Default economic representations are universal

The consequence of these claims is that the child can project a structure for NP: Poss-anaphor N, without specific further information.

We must be careful at this point to differentiate between the universal capacity to project a higher node, commonly labelled DP, and the language-particular Formal Features which a DP may carry. It is the Formal Features, which involve discourse connections, quantificational binding, and Phi-features (e.g. does the article carry gender) that the child must fix with reference to language-particular triggers. Exactly how the Formal Features associated with DP are recognized and represented remains an important topic of current research. It is noteworthy that it is these features themselves which allows the direct projection of lexical items to higher nodes. The Formal Features, under Chomsky's theory of Bare Phrase Structure

[11]See Roeper (1996) for discussion.

(Chomsky

1994) ,[12] project and become the node label. From this perspective, we find it natural to argue that the DP node itself is not present until various features are fixed.

This view coincides with the subset theory in acquisition which suggests, in a parallel manner, that the child begins with universal representations and adds features that capture language particular information. No features are subtracted and therefore no higher structure is projected and then reduced. Thus the child can project a default economic representation without fear that the

[12]The same property holds for categorial phrase-structure grammars, see Drozd (1994).

subset theory of acquisition will be violated

(Penner and Weissenborn

1996) .[13]

3.2 Diverse DP Effects in Acquisition

This approach is, thus far, empirically equivalent a the theory of underspecification advocated by Hyams, which projects nodes but leaves them

[13]The theory of a Minimal Default Grammar just articulated is an idealization which may be incorrect at some points. For instance, Vainikka (1994) has argued for me as a Default accusative marker in English that is used by the child for sentences like me want. However in German the default is the nominative ich. Therefore it is possible that Defaults themselves will reflect language-particular decisions. Nonetheless, the general hypothesis we have just articulated seems to be a worthwhile extension of economy theory to acquisition.

unoccupied by various features (Hyams 1996). If one can establish an independent effect of such nodes, then one can argue that they continue to be present. This remains an important possibility. In this case, the child could project DP in some environments while reverting to a minimal NP in a larger range of environments than we find among adults.

The opposite hypothesis holds as well: if DP is absent, then we predict independent syntactic effects. In particular, both Binding theory and Barrier theory should interact with absence of DP. There is some evidence available which favors this hypothesis.

Non-projection of the DP predicts a dimension of language variation: Norwegian possessives. Norwegian possessive pronouns are disjoint and either a bare noun or a possessive anaphor is required to express coreference:
In contrast, coreference is allowed in English:

(44) $John_i$ lost [his_i wallet]$_{DP}$

This follows under the assumptions that DP is binding domain. If we assume that *his* appears only in DP in English, and the DP is a binding domain, then coreference between *his* and *John* is possible because *his* can refer only outside its domain under Principle B. If NP is not a binding domain, then *his* appears in the same governing category as *John* and therefore coreference would violate Principle B. We argue that Norwegian allows a direct representation of NP with a filled possessor position and therefore Principle B applies to pronouns, ruling out coreference, just as coreference is excluded for pronouns occupying DP (*John saw him*). This renders morphological marking between anaphors and pronouns essential, as it happens.[14]

This leads to an acquisition prediction:

(45) If only an NP is present for children, then Disjoint Reference effects should appear.

There is some incidental evidence that children may overextend the Principle B effect to possessive *his*. In a large study by Roeper and colleagues, children given a picture choice showing both a bound and a disjoint reading of a pronoun were disproportionate in the amount of bound responses they were

[14]The argument has more dimensions which we will not address here. First there is some special behavior of dative constructions, and second there are claims that there is a hidden raising of possessives at Logical Form. See Hestvik (1992) and Avrutin (1994). We believe that economy of representation and these acquisition facts argue for a more straightforward NP/DP contrast.

willing to give for *his* (Roeper, Rooth et

al. 1985) .

(46) Who is lifting his hat?

=> 4% coreference (11/256) for 22 children 4-5yrs

(47) who thinks he has a hat/who does he think has a hat?

=> 20% coreference (52/256)

Sentences such as (47) received five times as much coreference as (46), where 4% is almost negligible. Why should children resist coreference between *who* (which is a variable)[15] and *his*? If children have projected *his* inside the NP, without a

[15]See Chien and Wexler (1990) for evidence that principle B does not apply to other variables like every girl washed her.

DP, then, as in the argument we just presented for Norwegian, coreference would violate Principle B. In (47) there is a two-clause structure and therefore Principle B is not violated because the pronoun refers outside its clause.

Different sources of evidence also point out to important developments with respect to DP structures. DeVilliers and Roeper (1995) examined the role of DP in acquisition as jointly a) a binding domain, and b) a barrier to wh-movement. The context of their study is the small class of nouns, existing in English, which allow a definite article to be non-referential, much like what is found in French.[16] These include terms like *way, chance, decision, time, help*[17] Consider:

(48) a. Every boy knows the way to fool his teacher

b. Every soldier must make the decision to fight

c. every girl knows the way home

Here *the way* is variable with respect to *every x*. Logically there is a second, referential reading where there is a single "way to fool a teacher" known by all boys.

The same holds for *make the decision*. In their experiment, deVilliers and Roeper, contrasted the variable and referential readings via two verbs. One would be a regular verb such as *like*, and the other a light verb such as *make*:

(49) a. every boy made the decision to shave him

b. every boy liked the decision to shave him.

---

[16]Longobardi (pc) points out other cases like:

a. the daughter of a farmer

where any of several daughters could be intended. He argues that the definite article inherits the indefinite properties of the NP in the PP (a farmer).

[17]Cases for adult English include:

where did he take the time to go t

what did he have the need to do t

what did he never have the chance to make t

In each instance the complex form fails to be a barrier to long distance movement

In (49b) there is a single decision, while in (49a) there is a set of decisions.[18] Both binding and long wh-extraction were possible when a variable *the* was present. This is precisely what is predicted if an NP and not a DP are present

(deVilliers and Roeper

1995) . That is, children (and adults) allow a long-distance reading (how-shave) over *make the decision* , but only a short-distance reading (how-like) with *like the decision*:

---

[18]Note that it is sometimes argued that "make a decision" is a complex verb. While incorporation at LF is a possibility, though again it includes a definite article, we find the fact that one can say the decision was made to be good evidence that the NP remains an independent syntactic entity.

The possessor reading in Norwegian, like French, continues to be present if a definite article is present.

(Boyd

1992) :

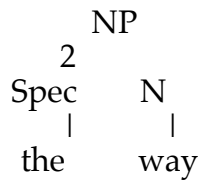
(50) a. how did John make the decision to shave him.

b. how did John like the decision to shave him.

Thus we find that the NP/DP distinction captures an important domain of variation.

Such pockets of variation are not surprising if we assume that a) language variation is feature-based, not lexical-item based, and b) that special subclasses will generally (though not exclusively given the variety of historical factors involved) tend toward default representations. In other words, we argue that if

there is no referential feature associated with *the*, then it can appear as a Spec of NP:

(51)


It is really the feature of specificity, as argued by deVilliers and Roeper following Enç (1991), which triggers the formation of a barrier.

Finally, from the perspective of scrambling, Schaeffer (1997) also argues that children begin without a DP projection in order to explain why they do not scramble elements which require a referential discourse connection.

4. Study

4.1 Goals of the study

Our acquisition theory predicts that at no point in development would the children treat IPC nominals as DPs. We have argued that acquisition defaults are economic representations and that economic representations are universal. Because IPC reflects the minimal, default option, children should have immediate access to their special interpretive properties. This entails the child can project a structure for bare NP, without projecting a DP.

An experiment was designed to test whether children's interpretation of possessors demonstrates understanding of the NP/DP distinction. In particular, our study tested the following hypotheses:

Hypothesis I: Children's interpretation of possessors in IPC exclude scope ambiguities, i.e., children understand the obligatory nature of variable reference for possessors in the IPC when in the presence of a quantifier antecedent.

Hypothesis I: Children's interpretation of possessors in IPC is constrained by locality. If they understand that the IPC has a different structure from DP, they would have access to knowledge of the Principle A effects of the implicit genitive anaphors.

4.2 Subjects

A total of 36 children from a Pennsylvania school and 33 college students participated in the experiment. The younger preschoolers were aged 3;7-4;8, the older preschoolers ranged between 4;8-5;10, and the kindergarden children were between the ages of 5;8 and 6;7. There were 12 children in each group.

4.3 Methods

In the experiment, children were read a story and asked to act out a prompt sentence containing the target nominal. Adults were asked to mark interpretations on a diagram on paper. Our test included two types of stories, one testing the interpretation of the bare noun possessor in a one-clause condition, and the other testing it in a two clause condition. Each story type was constructed with three different lexical items, for a total of six test items. The six prompt sentences were counterbalanced for overt possessors and bare nominals. There was one training story and two distractors.

The first story type (one clause condition) tested whether children represented the possessor of 'home' as a variable. The prompt sentence contained a quantifier 'everybody' in subject position, and the target nominal. The lexical items tested were 'go home', 'go to bed', 'go to school'.

One Clause Story

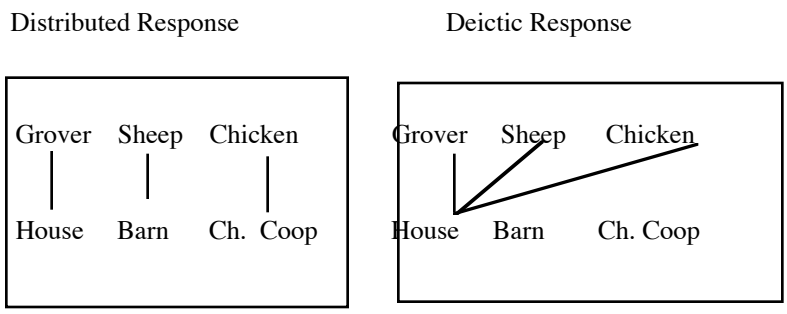
(52) The sheep lives in the barn, the dog lives in the doghouse and the chickens in the chicken coup. Grover lives in the house, and he loves to play with his animal friends. Some days they play outside, other days they play at

Grover's house. Today they played outside until it started to rain. Grover said: 'lets play at my house for a little longer'.

Target sentence	a. Everybody went home.
	b. Everybody went to his home.
Prompt	Can you show me?

Two types of responses were expected for the one clause story. The distributed response occurs when the possessor of 'home' is bound by the quantifier 'everybody'. In this response, each individual goes to his own home. The second type we labelled the deictic response, and it occurred when the possessor referred to the salient character in the story. In this case, this response occurred when the interpretation was that every character went to Grover's house. These interpretations are represented in (53):

(53)



The distributed response is the only grammatical response to (53a), but (53b) is ambiguous between a distributive and a deictic interpretation.

The second story type (two clause condition) tested whether children required the antecedent of the possessor of home to b e local, or they allowed binding from a higher clause. In the target sentence, the relevant noun was in an embedded clause, and the quantifier was in the matrix clause. The lexical items included in this part of the test were: 'go home', 'go to work' and 'go to school'.

As in the previous condition, DPs with overt possessors were counterbalanced with bare nouns.

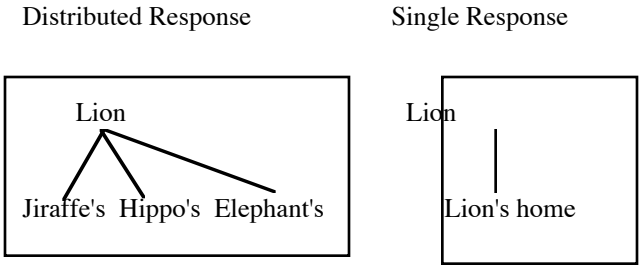
Two clause Story:

(54) Next day, each animal invited the Lion King to come play at his village. It is getting late, so he does not know if he can.

Target sentence	a. Everybody hoped the Lion King would go home, and he did.
	b. Everybody hoped the Lion King would go to his home, and he did.
Prompt	Can you show me what the Lion King did?

In this type of story the bound variable response has the Lion going to each home (a non-local interpretation). The single or deictic response is when the Lion goes to his own home (a local interpretation). These interpretation are shown in (55) below:

(55)



For bare nouns, as in (54a) the local, single response, is the only grammatical option, and the distributed response would violate the locality requirements of the implicit possessor. Either response to a DP, as illustrated by (54b), is grammatical.

4.4 Results

Responses were coded as either distributed or single. Of a total of possible 216 responses in the children's group, 212 fell in these two categories, 4 were irrelevant or nonresponses. For the adults 186/198 belonged in these two categories, 3 were irrelevant responses, and 9 were wrong responses. In these wrong responses, subjects overgeneralized bound variable readings, making all participants in some of the two clause stories perform the action, where the sentence only called for the actions of the Lion King.

Table 1 represents the percentage of distributed responses to each stimulus sentence in the first part of the experiment, the one clause condition. The results in this condition shows a high level of discrimination between bare nouns and DPs with overt possessors. Both children and adults distinguished sharply between the two NP types. Bare nominals do not always result in perfect performance, but there is always a substantial difference in the number of those responses to the two NP type conditions.

Insert Table 1 about here

Distributed responses for bare 'home' ranges between 40% and 66% for the children, in contrast to a range from 0% to 16% distributed responses for 'his home'. For 'work' these range between 42%-100%, in contrast with the 0%-33% range for 'his work'. The lexical item 'bed' elicited the highest proportion of variable readings by the children. The resulting difference between NP types was smaller, but the contrast is still in the right direction, with 83%-100% of distributed responses for 'bed', and 66%-80% for 'his bed'. There is quite large variation across stories and groups, but the bare noun-DP distinction is maintained consistently for all groups in the One Clause condition.

To test the validity of this inference we analyzed the number of distributed responses in a two factor Anova (Group x Nominal Type). The analysis revealed a significant effect for Age ($F_{3, 65}= 5.185$, $p=.0028$), a highly significant effect for Nominal Type ($F_{1, 65}= 17.2$, $p=.0001$), and no significant interaction ($F_{3, 65}= .081$, $p=.9702$). Figure 1 represents the interaction plot for distributed responses to one clause stories.

Insert Figure 1 about here

We attribute the Age effect in these results to the older subjects tendency to give more distributed responses. Particularly, children in the 4-5 year old group gave much less distributed responses overall. The Nominal Type effect shows that subjects in this study discriminate between the binding properties of the possessor in the two constructions. The lack of significant interaction supports

the idea that understanding of the NP/DP distinction does not develop over time but is present from the outset.

Table 2 presents the percentage of distributed responses in the Two Clause condition. Distributed responses in this condition indicate that the null possessor in the embedded clause is bound to the quantifier in the main clause. Thus, these responses are are non-local violate the locality condition on the implicit possessor.

Insert Table 2 about here

As can be seen in Table 2, the percentage of distributed responses are overall lower in comparison with the one clause conditions. While this part of the experiment revealed a surprising amount of violations to locality in the bare noun conditions, the contrast between bare nominals and overt possessors in all groups and lexical items is maintained. This is particularly clear in the case of 'home' in comparison with 'his home'. The younger children behaved exceptionally, because they lacked distributed responses in most cases, did not treat the two nominal types differently. An additional anomaly in the pattern of responses was the higher number of distributed responses to bare 'school' and 'work' which can be observed in the older group of children. One subject in that group was primarily responsible for this asymmetry. It is possible that the locality violations (also identifiable in the adult group) could be a carryover effect of the task.

An Anova was performed on the number of distributed responses with Age and Nominal Type as main effects. The analysis revealed a significant effect for Age ($F_{3, 65}$= 3.634, p=.0173), a highly significant effect for Nominal Type ($F_{1, 65}$= 12.50, p=.0007), and a significant interaction ($F_{3, 65}$= 3.998, p=.0112). Figure 2

shows the interaction plot for the number of distributed responses in the two clause stories.

Insert Figure 2 about here

These results favor the hypothesis that children understand locality, since for the most, the data shows that subjects discriminate between bare nouns and overt possessors, in the predicted direction. A clearer picture emerges from the comparison of distributed responsees to bare nouns in the one clause (where binding from the quantifier is obligatory) and in the two clause (where it violates the locality requirement on the antecedent). Table 3 summarizes the percentages in Table 1 and 2.

Insert Table 3 about here

Table 3 shows that children are willing to bind the possessor of a bare noun to a quantifier subject if it is immediately local, but much less so when the quantifier is in a different clause. With overt possessors, although in principle both interpretations are grammatical, there is a tendency for some of the children's group to give more bound responses in one clause stories. This reveals a sharp contrast between the intepretation of possessors in bare nouns in local and non-local enviroments, as illustrated by Figure 3.

Insert Figure 3 about here

This comparison was tested by means of an Anova on the number of distributed responses to bare nouns. The statistical analysis revealed that the Clause Type effect was highly significant ($F_{1, 65}$= 98.024, p=.0001), but that there was no significant Age effect ($F_{3, 65}$= 1.293, p=.2842), and no significant interaction ($F_{3, 65}$= 1.359, p=.2631).

4.5 Discussion

The evidence show that children's grammar of bare nominals patterns with the adult. Specifically, our results demonstrate that:

a) children allow bound variable binding for the implicit possessor in nominals,

b) children perform like adults in understanding the obligatory nature of binding the null possessor to the subject of the clause,

c) children restrict binding of the implicit possessors to local environments.

The findings in (a)-(c) are the effect of children's understanding of the obligatory representation of a null possessor in IPC. Because they are aware that the null possessor must be bound by the subject, children allow the distributed interpretation for bare nouns, even when in general, their tendency is not to give high percentage of distributed interpretation to pronouns (REFS). In contrast, children avoided the bound variable interpretation of the bare noun in the two clause condition, when this interpretation violates locality. This indicates that children discriminate between the binding properties of implicit possessors and overt possessors, that they are aware of the anaphoric nature of null possessors, and, finally that they understand the lack of scope interactions characteristic of bare nouns.

5. Conclusion

Research on children's understanding of quantification shows that young children are aware that indefinites interact with quantifiers in scope. In

experimental settings, children allow both narrow and wide scope interpretation of indefinites. The central debate on the study of child grammars of quantification is precisely how adult like these grammars are.

In pragmatically neutral contexts, some children have been noted to make errors when analyzing sentences involving the narrow scope of the indefinite with respect to universal quantifiers such as

(Roeper and deVilliers 1993; Philip 1995;

Drozd 1996; Philip 1996) :

(55) Every boy rides a horse

These children appear to overextend the domain over which the quantifier ranges, to include all members of both the object and the subject set

(all horses and all boys involved). Drozd 1996 argues that these errors were not a problem of distributivity (which distributes predication over pluralities), but of quantification (which determines the selection from the set to be consulted) since children are able to felicitously analyze distributivity in the case of definite plurals ('the boys') and conjoined name subjects. Instead, he argues, the errors stem from a problem with understanding universal quantification generally, since children make overxhaustive searches with inherently distributive quantifiers such as *every*, and *each*, as well as with non-distributive universal quantifiers such as *all*.

Interestingly, with regards to wide scope interpretation of indefinites, experiments have shown that some children avoid this interpretation. DeVilliers and Roeper (1993) found that 3 out of the 15 children in the study rejected a sentence such as (56) for pictures illustrating a chair on which all cats were sitting, i.e., the wide scope interpretation of the indefinite.

(56) is every cat on a chair

Similarly, Crain et al found that the children in their study accepted wide scope readings only 69% of the time when the indefinite was the subject:

(57) A smurf jumped over every fence.

but 92% of the time when the indefinite was the object:

(58) Every smurf ate a pizza.

Both of these results, the overextension of the distributed wide scope reading of the indefinite, as well as the rejection of the narrow scope reading, raises the question of the completeness of children's grammar of quantification. These two results taken together seem to indicate a general preference for distributive readings. A different way of presenting this issue would be to ask the following question: How do children acquire the distinction between strong and weak readings of determiners, and what is the role that structural distinctions play in

this process? Our study asked how sensitive children are to the presence of determiners in the interpretation of bound possessors, and found children to be very sensitive to it, both in giving bound variable readings when the quantifier was local, as well as in avoiding it when there was an intervening antecedent. The implication of our research is that young children are aware that bare NPs are always weak. Thus, whatever makes their grammar of quantification incomplete, does not originate on a lack of understanding of structural distinctions. The weakness of bare nouns, in the sense that they can never take wide scope, is dependent upon its NP status (lack of overt Determiners). Our evidence shows that they are sharply sensitive to that distinction.

We had argued from an acquisition perspective that economy of representation crucially determines the structure and acquisition of a construction which has been generally treated simply as "idiomatic". From the perspective of economy of projection we predicted that the anaphoric connection will be immediately evident to the child, together with contraints on anaphora (Principle A). This prediction was supported by the experimental evidence, that showed that children mastered the scope and binding facts of bare nominals from at least the age of three.

The presence of an anaphoric connection, in effect, though buried within an idiom, is free of lexical requirements. It is a connection between a higher DP and anaphoric Pro inside an NP. Therefore, unlike lexically complex anaphors like "himself", this anaphoric connection requires no lexical learning. It is plausibly the first form of anaphoric binding available in acquisition. This remains as an hypothesis since we have not yet shown the earliest point at which *home* type expressions are acquired, although we discuss in previous work the fact that this

is used very early by children (Pérez-

Leroux and Roeper 1996) .

(59) *ADA:Kitty go home (ADAM01)

What does it mean to say that a linguistic structure is idiomatic? One of the questions facing modern linguistic theory is the proper statement of lexical information. In other words, where is lexical information located in a representation? Several possibilities arise: a feature can be represented inside the word, at the node level, or in terms of associated projections (to Spec or Comp positions).

Lexical information at the node level exists in two possible ways. If we take Chomsky's recent theory (Chomsky 1994; Chomsky 1995), then the word itself projects to a higher node. The word then contains Formal Features which projects the nodes above and the features they contain which must be subject to Checking theory. Formal Features, in this conception, include a designation of verb classes: mental verbs, for instance, might share a feature and a set of projections selected. Selection of these projections themselves include non-lexical information.

Let's argue that *home* is lexically special. We must ask what kind: is it completely unique or is it a common feature. Since we have argued that the

crucial factor is the [+anaphoric] property of the external (possessor) argument, then it is a very central feature which is involved. Where should this property be represented? We argue, in this instance, that it is linked to a specifier position which contains an "inherent possessor". We make this argument because the anaphoric property can be blocked in certain syntactic environments: in compounds, and in DPs. While the feature is linked to the phonetic element "home", its projection of an empty Spec-Pro-arb follows from UG directly and requires no learning. Other anaphors may involve a different representation of their anaphoric features. Elements like *himself* certainly carry the anaphoric feature to its DP projection.

Note also that the acceptable positions for bare *home* are determined in part by the verb classes which allow bare objects. Most verbs allow this construction: *love/appreciate/hate/prefer* , all will take an anaphoric *home* as an object. Now is it the case that any noun can be a bare noun and fit into that environment? There remain restrictions which are difficult to state:

(60) *John made home

The bare noun in (56) is not acceptable, although (57) is, along with hundreds of others: *make place* / *time* / *efforts* / *space* / *room* / *love*.

(61) John made progress

The set is large enough that one suspects a further that a Formal Feature is involved, although it may be difficult to describe.

What is it exactly that needs to be learned? The answer is that the child must trigger the formal feature +anaphoric with the object *home*, which then automatically identifies the relevant information in the *Pro* position associated with the object. The triggering environment is very simple: all that the child needs to observe is one instance of the bare noun. Our previous analysis of naturalistic data shows that there is ample opportunity for the child to observe

this . Additionally, we showed that the parental feedback is contradictory in a way such that it is impossible for children to use it to infer the anaphoric nature of home.

In addition the child must conservatively designate a large set of verbs--a verb class--that can project the large noun class which take the IPC relation. In other words, the child must also identify the lexical relation between a verb-class and a noun-class. We shall not provide a full technical account of this relation but simply suggest that what is involved is a verb-class feature selecting a noun-class feature. The lexical connection, therefore is between the VP-node of the selecting verb and the NP-node of the selected bare noun.

In sum we have argued theoretically that home represents a "minimal structure". Therefore it can be instantly identified by a child as having inhernet binding properties. Our evidence suggests that this aacquisition implication is confirmed.

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