

Definite and bare noun contrasts in child Catalan

Anna Gavarró*, Ana Teresa Pérez-Leroux**
and Thomas Roeper[#]

*Universitat Autònoma de Barcelona / **University of Toronto /

[#]University of Massachusetts

Thirty-three children aged 3–5 were tested for comprehension of definite and bare noun (BN) contrasts in Catalan, a language with bare nouns in direct object but not in subject position. Catalan objects have the same semantics as in English subjects: BNs map to generic and definites into specific referents. Global semantic parameters cannot explain the contrast in this type of language. The test of Catalan sentences equivalent to *She needs shoes/She needs the shoes* showed no discrimination at 3 and sensitivity by 4. We argue under an economy approach that BNs have a default generic reading that can be shifted into an ‘instance-of-a-kind’ interpretation. Acquisition is driven by a principle of semantic contrast that restricts the initial overextension of BNs to specific readings.

1. Introduction

The purpose of this paper is to examine the acquisition of bare noun/DP contrasts in direct object contexts in child Catalan.¹ The recent literature on the acquisition of determiners across languages indicates that they emerge early in languages where determiner insertion is generalized, as is the case with Italian, Catalan, and Greek (Chierchia et al. 1999; Guasti & Gavarró 2003; Marinis 2003). The literature debates whether differences in the rate of acquisition depend on prosodic factors (Lleó & Demuth 1999) or on syntactic/semantic factors (Chierchia et al. 1999). Despite robust findings that emergence of determiners is early in those languages, there is little evidence that evaluates the extent of the children’s mastery of the target meanings. Here we present an experiment on child comprehension of Catalan definite DP vs. bare nouns in direct object contexts. We argue that a theory of economy in language favors minimal structures as acquisition defaults. One natural hypothesis is that these minimal structures have automatic semantic mappings, and thus, certain meanings should not require extensive language experience. If minimal default structures produce a de-

fault interpretation directly from UG, we expect children to immediately recognize the relevant meaning.

The paper proceeds as follows. Section 2 characterizes the syntax and semantics of bare nouns in adult grammar. In Section 3 we present our basic assumptions and discuss some relevant acquisition literature on the development of NPs and DPs. Section 4 is devoted to the presentation of an original experiment on the interpretation of bare nouns and definite DPs in object position in child Catalan, and Section 5 presents our conclusions.

2. The syntax and semantics of bare nouns

2.1 Bare objects

Compare the distribution of definite/bare noun contrasts, which holds across all positions in English but exhibit a subject/object asymmetry in Catalan and other Romance languages, as shown in (1).

- | | | |
|-----|----------------|--|
| (1) | <i>English</i> | <i>Catalan (and Spanish, etc.)</i> |
| | Subjects | Tigers live in India. (Gen) |
| | | The tigers live in India. (Spec) |
| | Objects | I want shoes. (Gen) |
| | | I want the shoes. (Spec) |
| | | *Tigres viuen a l'Índia. |
| | | Els tigres viuen a l'Índia. (Gen/Spec) |
| | | Busco sabates. (Gen) |
| | | Busco les sabates. (Spec) |

The semantic literature (Carlson 1977; Diesing 1992; and many others) has extensively debated the nature of bare plural (BP) subjects. These have existential or kind reference, depending on the meaning of the predicate. With characterizing predicates such as in (2a), BPs take on a kind interpretation, referring to the class as a whole. In other contexts, the interpretation is existential: (2b) asserts that there are some firemen who happen to be available.

- (2) a. Firemen are nice. (Gen)
 b. Firemen are available. (\exists)

The case of bare objects is less clear. We note that a similar alternation in sense operates in the object domain as shown in (3a–c). With an extensional verb in (3a) BPs are clearly existential: the implication of (3a) is that there are some carrots that were eaten by me. Under an intensional verb such as that in (3b), there is no existential assertion: it is entirely possible that the object does not exist, as shown in (3c).

- (3) a. I ate carrots.
 b. I need shoes.
 c. I need unicorns/flying cars/etc.

The semantic literature fails to single out this reading of the bare object. We will refer to these bare plural objects of intensional verbs as *generic objects* in the understanding that

the reading is not a reference to a kind, but instead reference to a potential instance of the kind (see below the discussion on Chierchia's formalization of this notion).² What (3) and (4) have in common is the massification/lack of quantization of the concept. Carrots are treated as substance in (3a), and we see what is treated as a coerced mass reading in Gomeshi's (2003) discussion of examples such as (4).

- (4) I saw lion today.

2.2 Genericity across languages: the status of bare nouns

There are good reasons to believe that the linguistic expression of generic reference represents a challenging learning problem for the child. Children seem to acquire generic knowledge quickly and efficiently from a single instance (see Gelman & Tardif 1998; Pappas & Gelman 1998; Hollander et al. 2002; Gelman, Star, & Flukes 2003). But how does the child figure out that a given statement has generic reference? No single morpheme directly encodes genericity in any language, and there is a wide range of crosslinguistic variation in how generic meanings are represented (Dayal 2002). The child's task is simplified if one considers bare nominals to have a special status, as non-quantized elements that by default receive generic reference. If, as pointed out by Chierchia (1998) and Dayal (2002), the distribution and interpretation of bare nouns in a language depends on the existing lexical material, children should be able to restrict the semantic extension of the default bare noun with the acquisition of the specific elements in the functional skeleton of the DP.

But precisely how does parametrization in the DP domain relate to BN interpretation? The canonical view of the syntax/semantics interface given in (5) posits that syntactic categories are mapped onto semantic types, determining denotations. Semantic type mismatches are resolved via a highly constrained universal inventory of available type-shifting operations.

- (5) NP $\rightarrow \langle e, t \rangle$,
 DP $\rightarrow e$, or GQ (generalized quantifiers).

Chierchia (1998) proposed a refinement of this canonical mapping to account for typological variation with regards to the distribution and interpretation of bare nouns. He proposed that the range of possibilities for the mapping of nominal projections is parametrized, and that languages vary depending on whether nominals are mapped directly as semantic arguments (type e), or semantic predicates (type $\langle e, t \rangle$). His nominal mapping parameter (NMP) differentiates between three language types. In Type I, that of no-determiners languages (i.e. Chinese and other classifier languages which lack determiners and numbers) NPs are [+arg, -pred], that is they map directly as arguments. In Type III, there is generalized use of determiners, as NPs are [-arg, +pred], and the DP layer is required for the nominal to be a semantic argument; the Romance languages belong to this group. In Type II, to which the Germanic languages belong, bare nouns (NPs) can function as either arguments or predicates [+arg, +pred].

The [+arg, +pred] setting of the parameter allows the possibility of bare nouns in English, but individual lexical items may be associated with one feature value or the other. This provides a strictly lexical treatment for what can appear as bare noun in English: only mass nouns can appear in subject position in singular form (6a), and count nouns must be pluralized (6b). As Chierchia notes, the mass/count distinction is lexically arbitrary: *change* vs. *coins* have the same denotation but behave differently.

- (6) a. Gold is rare.
 b. Books are valuable.
 c. *Book is valuable.

In Chierchia (1998), singular mass nouns are allowed in English because they can directly map as *e*, if they are marked in the lexicon as +arg. Bare plurals are possible because count nouns are of type $\langle e, t \rangle$. This can be shifted up to a kind interpretation by the free type-shifting operator *up* (\wedge), which lifts the type to *e*. The plural feature is required because kinds are functions from world into pluralities, which are the sum of [typical] instances of the kind (Chierchia 1998: 349). Count singular subjects are ungrammatical because the type-shifter *up* (\wedge) applied to a singular count noun such as *dog* will not yield a proper kind (\wedge dog), because the dog-kind includes the set of dogs, not an atom from that set.

This approach follows Carlson (1977) in adopting a monosemous view of English bare plurals. Under this view, the generic reading is the fundamental part of the sense of bare nouns, and the existential reading illustrated above in (2b) is a derived sense. This sense results from a semantic operation, Derived Kind Predication (DKP), which introduces local existential closure. This yields the ‘instance of a kind’ reading. The operation of DKP becomes obvious when a species name produced along the word *kind* is used with a specific reading, as in (7a, b) (from Chierchia 1998). It is what underlies the specific plural indefinite reading of (7c).

- (7) a. That *kind* of animal is ruining my garden.
 b. [Pointing at the picture of a lion in a biology book]
 That *kind* is what you saw this morning at the zoo.
 c. He bought books.

2.3 Bare nouns in Catalan

Recall that bare NPs are generally disallowed in Catalan. We leave aside bare singular NPs in object position in lexicalised constructions (see Espinal 2001), and bare NPs in special registers (Guasti et al. 2004). According to Chierchia, bare subjects are excluded because Romance nouns are $\langle e, t \rangle$, and NPs can only be arguments if D is projected.

- (8) a. **Dinosaures es van extingir.*
 dinosaurs REFL PAST-PL extinct
 ‘Dinosaurs became extinct.’

- b. **Tigres són mamífers.*
 tigers are mammals
 ‘Tigers are mammals.’

Bare NPs appear only in restricted conditions: in governed positions as objects of P and as direct objects, and as postverbal subjects of unaccusatives. The rationale for this object/subject asymmetry is provided by the putative presence of a null D head (δ), as shown in (10), which has the same semantic contribution as the type-shifter (\uparrow) of raising the semantic type to *e*.

- (9) a. *Vindrem en tren.*
 come-FUT-3PL in train
 ‘We’ll come by train.’
 b. *Comprarem llibres.*
 buy-FUT-3PL books
 ‘We’ll buy books.’
 c. *Cauen rocs.*
 fall-3PL rocks
 ‘Rocks fall’

- (10) [_{DP} δ [_{NP} llibres] ‘books’

Despite the differences evident in the subject domain, bare objects in Catalan share properties with both bare objects and bare subjects in English. In parallel to English, Catalan objects of intensional verbs display a contrast between generic and non-generic readings: bare NPs receive a generic object reading, overt full DPs a specific reading.

- (11) a. *Busco sabates.*
 look-for-1s shoes
 ‘I look for shoes (generic).’
 b. *Busco les sabates.*
 look-for-1s the shoes
 ‘I look for the shoes (specific).’

It is interesting that the same restrictions described for English subjects apply to both English objects and Catalan objects. The restrictions are both lexical (mass/count) and morphosyntactic (singular vs. plural). Bare nouns must either be plural or mass singular; see (6) and (12) for English, and (11) and (13) for Catalan.

- (12) a. *I am looking for shoe.
 b. I am looking for flour.
 (13) a. **Busco sabata.*
 look-for-1s shoe

- b. *Busco farina.*
 look-for-1s flour
 'I look for flour.'

These phenomena are not given a unified account under the system proposed by Chierchia. In Catalan bare objects are possible by virtue of the availability of the null D. In English the introduction of a bare mass noun is possible for lexical reasons, but in Catalan it is made possible by a type-shifting null determiner. The subject/object asymmetry in Romance receives two explanations, one syntactic (ECP regulated distribution of δ), and one semantic (definites, which are mapped as ι are allowed to intentionalize – become kind-referring –, in appropriate semantic contexts: individual level predicates and as subjects of generic sentences). The analysis is therefore problematic in two respects: it misses a generalization that can be established crosslinguistically, and creates a redundancy in the analysis Romance.

3. Assumptions on acquisition

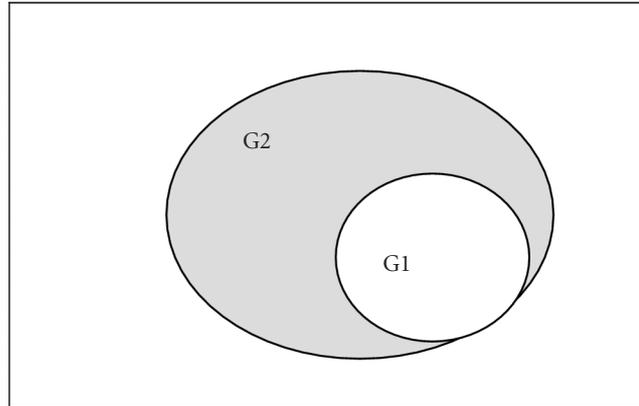
We assume both the uniformity principle (Chomsky 1999:2), which posits underlying uniformity in languages, with variety across languages restricted to easily detectable properties of utterances, and economy of acquisition, which proposes that children start with the minimal structure projected in a domain, and that the child avoids early commitment to functional representation (Lebeaux 1988; Vainikka 1993/1994; Roeper 1992, 1998). This leads us to expect that the initial mapping of nominals is always generic, and that children's seeming specificity is actually the result of pragmatically induced typeshifting. Chierchia et al. (1999) arrive at a comparable conclusion.³

We also adopt the formal requirement of semantic contrast (i.e., Semantic Uniqueness): each element gets a semantic mapping, and formal elements do not fully overlap in features, although they may overlap in meaning (Chierchia 1998).

These assumptions in the domain of the acquisition of NP/DP have several consequences:

- i. The initial projection is NP. All initial representations of nominal reference in child language have NP type properties.
- ii. Bare nouns will always be primarily mapped as generic, and allowed to function semantically as either predicates or arguments.
- iii. Children will rely on the (local) interaction with other lexical options to determine the interpretation of definites.

If the minimal child grammar allows mapping to a specific interpretation given bare NP syntax, thus meeting all the referential needs of the child, why should the child ever work towards a mature grammar? First, the child identifies articles in the adult input, and must assimilate them into the grammar. Second, more explicit (i.e., more mature) grammars are more efficient, in a pragmatic sense. The child starts out with generic,



Graphic 1.

non-quantized reference that can pragmatically adapt to other senses by type-shifting and later becomes capable of distinguish generic from specific reference, by acquiring the language specific forms that introduce disambiguation. The null, most economical form retains the default meaning.

Our approach is consistent with Chierchia's answer to the question of acquisition, according to which a universal mechanism takes the form of an 'elsewhere' condition: the universal form is bled by language-specific mechanisms. More overt, specified morphology will subtract meanings from the default expressed by the zero form: once the child relates the presence of the definite article to specificity, that meaning is blocked from the bare form by virtue of uniqueness.

Using this approach, development can be described as the sequence of stages G1 and G2:

- (14) a. G1 stage
- All NPs are initially mapped as generic
 - Specificity is initially supplied by universal mechanisms in the syntax/semantics interface [type-shifting]
- b. G2 stage
- Overt morphemes bleed the reference space of the bare noun default

The size of G1 varies across languages, and G2 always contains G1 (see Roeper 1999; Lebeaux 1988, 2000).

Thus, for development, semantic uniqueness has the following consequences:

- i. Bare nouns initially have generic reference and, where retained, remain available for generic reference. Alternative possibilities are given in the language-specific D system.
- ii. The introduction of overt determiners subtracts the existential and definite readings from the bare form. Other possibilities in nominal reference are introduced

explicitly as well, once the rest of the functional system comes in: demonstrative, partitive senses, etc.

- iii. The system will continue to readjust by virtue of semantic uniqueness until the distribution of the full inventory of categories involved in nominal reference is mapped.

One specific feature of our proposal is that the distribution of bare/full DPs is regulated locally (at the syntactic level), rather than macro-parametrically (at the language level). This departs from the standard treatments that propose a language-level parameter for nominal reference in Romance vs. Germanic (Longobardi 1994; Chierchia 1998).

3.1 The emergence of DP in child grammar

Two kinds of research have been conducted on the emergence of DPs in child grammar: research on the emergence of articles based on data from corpus studies, and research on the interpretation of bare/DP contrasts.

3.1.1 *Evidence for crosslinguistic variation in the emergence of D*

Research based on corpus studies has recently shown that definite articles cease to be omitted earlier in French and Italian than in English and Swedish (Chierchia et al. 1999), and earlier in Catalan than in Dutch (Guasti et al. 2004). While phonological factors may play a role in boosting article production in Romance (Lleó & Demuth 1999), these do not suffice to explain the difference in the achievement of the target system between Romance and Germanic. Despite phonological differences, Romance articles are produced as in the target earlier than in Germanic; Guasti et al. (2004) show that omission is homogeneous in Catalan, Dutch and Italian at a first stage of development (the stage at which children use up to a 100 words), but at the second stage (101 to 200 words) omission is already very low in both Catalan and Italian while it remains over 50% in Dutch. Child Greek seems to pattern with Romance, with early and extensive use of determiners (Marinis 2003).

These overall differences between Romance and Germanic are consistent with NMP, showing an advantage in the emergence of D in Romance, but, given that these results come from overall use, they do not provide direct evidence about the nature of the semantic mappings. Therefore experimental testing is needed to evaluate whether the semantic mapping is indeed as in the target when syntactic production is virtually adult-like. This is the kind of evidence sought in the experiments detailed below.

3.1.2 *Evidence of knowledge of semantic mapping of nominals*

Sensitivity to bare/DP contrasts has been investigated by Burns and Soja (1997) by looking at the idiomatic features of the bare noun construction:

- (15) a. She is at church. (Institutional reading)
- b. She is at a church. (Location reading)

Children showed sensitivity to the contrast in (15): 4 year olds demonstrated substantial discrimination, selecting determiners 20% of the time for the institutional scenario versus 75% of the time for the location scenario.

Pérez-Leroux and Roeper (1999) provide evidence that young children know the locality properties of bare nominal idioms in contrast with the properties of DPs illustrated in (16):

- (16) a. Everyone went to his home? (referential/bound variable)
 Everyone went home? (bound variable only)
- b. Everybody hoped the Lion King would go home and he did.
 (local interpretation=LK only)
 Everybody hoped the Lion King would go to his home and he did.
 (long distance or local interpretation)

For (16a), children in that study gave high proportion of quantifier-bound readings for the BN (75–100%), but a much lower one with the possessor determiner (around 25%). For the contexts in (16b), non-local binding of bare *home* occurred in less than 10% of cases, while with possessors it occurred close to 40%. Children clearly understood the local, anaphoric nature of the bare nominal idiom, and used the structural contrast to build the idiomatic readings.

In sum, the early detection of the contrasts in (15) and (16) shows fine-grained semantic distinctions to be present from early on in development. In what follows we present an experiment designed to detect the interpretation given by Catalan-speaking children to BNs and full DPs.

4. An experiment on the contrast between bare nouns and definite DPs

4.1 Methods

We designed some short stories to evaluate the children's sensitivity to the NP/DP distinction and their respective generic/definite interpretations in object position. Each story had two characters, one searching for something specific, and another with general needs. Children heard four stories of this type, with pictures left visible during the narration. Each story was followed by a question of the form *Who needs X?*, as in (17). Determiner type (\emptyset or definite) was counterbalanced per story across children. Figure 1 illustrates a sample story.

- (17) a. *Qui necessita les sabates?*
 who needs the shoes?
 [Specific answer: little Cinderella]
- b. *Qui necessita sabates?*
 who needs shoes?
 [Generic answer: the older sister]



Figure 1. Sample story: Little girl is looking for the Cinderella shoes

Sessions were recorded, and data entered and coded as generic or specific. We had no instances of non-responses or anomalous responses, although many of the children offered their responses by pointing rather than by verbally identifying the referent.

4.2 Participants

Thirty-three Catalan speaking children aged 2;7–5;10, and 10 adults participated in the study. Children were divided into three age groups of comparable size. Most children were tested in schools, although some were recruited outside a school setting.

(18)	age group	#	age range	mean
	3 year olds	11	2;7–3;9	3;4
	4 year olds	11	3;11–4;9	4;4
	5 year olds	12	4;10–5;10	5;3
	adults	10		

4.3 Results

The results, in Figure 2, show the proportion of generic answers per group per condition. These figures include both the exclusive generic answers as in (17b), and the inclusive responses, in which speakers gave ‘both’ as an answer. Our intuition is that some speakers formulate the generic interpretation *contrastively* or *exclusively* (i.e., ‘X

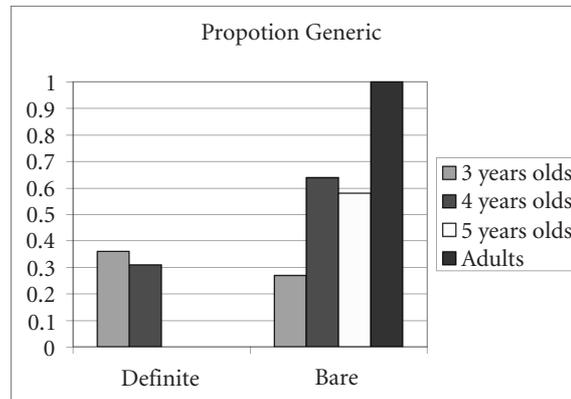


Figure 2. Proportion of generic answers per determiner in Catalan

only needs shoes in general', not an actual set of shoes), or *inclusively* (with a broad inference, where if X needs specific shoes, it is true that X needs shoes in general).

The results reveal clear patterns of development for both the definite and the bare noun condition. Consistently with our expectations, adults were uniformly willing to give generic responses to the bare noun phrase, and unwilling to give generic answers when the question was presented with a definite determiner. On average, the younger children gave around 1/3 of generic responses, and were generally unable to distinguish between definite and bare. All of the children's generic responses were exclusive. Around the age of four, generic responses have doubled for BNs, resulting in a sizeable level of discrimination, although many children still accept the generic response for the definite condition. The older children, like adults, did not give generic responses to the definite, although they still fall quite short from the ceiling performance present in adults.

The statistical analysis supports these observations: age was found to be significant ($F_{3,40} = 3.252, p = .0316$), and both determiner and the determiner x age interaction were highly significant ($F_{1,40} = 55.572, p < .0001$, and $F_{3,40} = 13.712, p < .0001$, respectively). Analyzing the child data alone provides further support for these conclusions. When excluding the adult data, the statistical analysis showed significant effect of determiner ($F_{1,31} = 11.888, p = .002$), non-significant effect of age ($F_{2,31} = 2.269, p = .1203$) but significant age by determiner interaction ($F_{2,31} = 6.317, p = .005$).

Overall, the children's data show a bias for the specific, and an increasing number of children responding with the target pattern (generic answers to bare nouns, specific answers to the definite NPs). No child aged 3 gave the target answer. Within the 4 year-old group, 3/11 had the target answer and another child had a near-target pattern of answers (one specific answer to the bare noun). In the 5 year-old group, 5/12 children showed target performance, and 4 additional children had the near-target pattern.

We now turn to the observation that for children the generic response is much lower than that of the adults. Why should this be so? One possibility is that this is

simply a story-effect: the dominance of the specific response reflects an inherent bias towards specificity, in either the story or the children's grammar. This effect would be insufficient to override the adult grammar. Another possibility is that the low number of generic responses to the bare noun given by the children originates in the inclusive interpretation. We analyzed the extent to which adults treated the bare noun inclusively or exclusively. The adult ceiling responses (100% generic) included 3 subjects who indeed gave inclusive interpretations to bare nouns. The inclusive interpretation allows for the generic object interpretation to include both the generic response (in our example, the older sister with general needs) and the specific response (little Cinderella who needs the glass slipper). Both can be characterized as 'needing shoes' – in one case the object of need is specific and previously identified, in the other it isn't. The exclusive or contrastive interpretation is one where only the generic response is considered appropriate.

We tested adults a second time using the same stories, and reading the counter-balanced questions to them. When asked a second time, more subjects were willing to accept both, or to allow the specific. According this, we were able to divide the adult participants into:

- i. Speakers who consistently take 'both' answers as possible. We argued that this is a generic construal, while allowing broad inference, where the specific case is taken as part of the general case. (N = 3)
- ii. Speakers who interpret bare noun as contrastively generic (where generic interpretation does not include the specific case). (N = 3)
- iii. Speakers who occasionally accept one 'both' response. (N = 4)

The seven inclusive adults (those belonging to groups (ii) and (iii)) gave a total amount of 17 inclusive responses out of a total possible 40 bare noun answers. In contrast, re-running the test had no effect on the definite NPs. From a total of 40 opportunities to answer questions with definite objects, only four adult responses diverged from the target: two were generic errors, one was 'I don't know', and one was ambiguous 'both'.

The contrastive approach represents a more strict interpretation of the generic object as an unidentified, possibly typical instance of a kind, as opposed to the inclusive approach which covers both specific and unspecified, typical instances. If children, like adults, allow the inclusive interpretation of generic NPs, then the expected proportion of generic answers should be lower. Children that are not discriminating between bare nouns and definites could choose randomly between a generic and specific *interpretation* (i.e., .5). If their generic interpretation is inclusive, that generic interpretation is further divided into the two response types ($.5 \times .5 = .25$) (this is close to the 1/3 generic response we see in younger children).

Thus we assume that children are like adults in that some of them will treat generic expressions inclusively; however, children, unlike adults, do not recognize the ambiguity or are reluctant to give 'both' as an answer.

To close our discussion of results, our data show an initial stage of no-discrimination, in which the children are treating both BNs and definites identically. Interestingly,

this happens at a stage when, as mentioned in Section 3.1, they produce articles as in the target language. The 3 year-old group was made up primarily of children (9 out of 11) who gave the same answer to both conditions. At that stage children are giving about a total one third responses generic, which we propose could be treated as the combination of two factors: treating both structures as capable of both the specific and the generic reading and, specifically for the generic reading, having some speakers treat the generic as inclusive (vs. exclusive). The middle group of children shows an increase in the proportion of generic responses to bare nouns, which depends on some children having arrived at target or near target patterns. The older children had reached over 60% adult-like behavior for the bare noun, and 100% correct performance for the definite determiner, and were classified as either having a target pattern, or providing specific answers alone.

Does this mean that 3 year-old children have no way of expressing definiteness? We argue that they have an incomplete notion of definiteness. The semantics of the definite goes beyond the traditional notion of a definite/indefinite opposition. Given the many dimensions to the interpretation of the article system (Roeper 2003), conceivably, form-to-sense mapping is complex and there is no reason to expect it be instantaneous upon acquisition of the distribution. Generics are included in the references to non-referential uses of definites that abound in the theoretical literature. For instance, Vergnaud and Zubizarreta (1992) propose that definites in French and other Romance languages function as expletives, empty of semantic meaning, in contexts such as abstract and mass nouns, inalienable possession, and plural generics. We include Catalan examples in (19):

- (19) a. La sorra és fina.
 the sand is fine
 ‘Sand is fine.’
 b. En Pere s’ha trencat la cama.
 Det Pere CL has broken the leg
 ‘Pere has broken his leg.’

But beyond these typological differences, many uses of definites across languages do not quite fit the traditional notion of definites as specific and previously introduced, as Barker (1995) shows for part/whole contexts:⁴

- (20) Abu slaughtered a goat yesterday. I bought the liver from him.

The possibility of nonreferential definites across languages suggests that the younger child could have the article in production, but not yet fully interpret it as present. Children could easily attend to one dimension of the semantics of definites (namely, familiarity, as shown in Maratsos 1976 and Karmiloff-Smith 1979) yet not have mastery of it with respect to generic domains. Villiers and Roeper (1995) report children’s treatment of definites as expletives in sentences such as those in (21). Children allowed the noun *the decision* as a bound variable in (21b) (multiple decisions) as if it was

(21a), where a bound variable reading is possible for the adult by virtue of reanalysis of the light verb construction *make the decision*.

- (21) a. Every boy made the decision to shave him.
 b. Every boy liked the decision to shave him.

Finally, Pérez-Leroux et al. (2004) found that children acquiring English allowed sentences with definite plural subjects to be interpreted generically, an option that is grammatical in Romance but not in English, as described in (1) above.

5. Conclusions

Our results provide evidence for a brief no-discrimination stage where children are not able to treat Bare Nouns and DPs as semantically different in comprehension. Despite the preponderance of the specific answer for that period, the data patterns strongly suggest the equal availability of generic reference in young children. This follows from our assumption that children are able to provide inclusive readings for the bare nouns, but not skilled at providing the ‘both’ response. This assumption generates the correct predictions for the proportion of generic responses for the younger group, and correctly accounts for the high number of specific responses later on. The no-discrimination stage is followed by the elimination in the proportion of generic errors with definites, and the increase in the preference of the generic response to bare nouns.

We conclude that, overall, the data are consistent with an economy approach, where the initial nominal projections are treated as minimal NP projections. Furthermore, we suggest that these nominals are initially mapped as kinds. Specific reference is provided in the initial child grammar by the free type-shifting operation of Derived Kind Predication. Thus, the initial grammar may be argued to function like Chinese, where bare nouns (NPs) are freely able to serve as semantic arguments. Crucially, development seems driven by recognition of the value of the definite determiner. Children’s increase in generic answers is matched by the complete elimination of generic errors with the definite. We believe these results support the possibility that a semantic contrast principle, comparable to those proposed in the domain of lexical development, operates in the functional domain as well.

Let us now try to connect our work to a broader acquisition theory. We can state two extreme propositions, each of which yields a different hypothesis about the Initial State:

Hypothesis 1: Bare Nouns are neutral with respect to the specific/generic contrast.

Hypothesis 2: Bare Nouns are strictly generic in UG.

H1 produces learnability problems since it overgenerates and would never be confronted with data that would force a grammar revision. On the other hand, H2 would, strictly speaking, disallow an interpretation of a sentence like “I want milk” to mean

that one wants a specific glass of milk. This is obviously counterintuitive. It is an option found in amusing aphorisms like “He hates people, but he loves mankind” which carries the meaning that someone hates specific individuals, but loves the collective or perhaps generic version of “mankind”. However, we must explain how the child (and the adult) avoids such an exclusively generic interpretation. Therefore we have in effect adopted H3, a modified version of H2:

Hypothesis 3: Bare Nouns are inherently generic but are subject to Derived Kind Predication.

The concept of a Derived Kind Predication is a formal representation of the intuition that in a sentence like “I want milk” one can imply a specific desire when a bare noun is used. This ‘instance of a kind’ reading is really an important option for the acquisition process. It allows the child who has not fixed all of the special properties of articles to use inherently generic reference to navigate the specificity of daily life. If there is a cookie and a child says “I want cookie” then by joint application of the Derived Kind Predication both child and adult can interpret the sentence to mean that the child wants that cookie that is present in the situation. Without that provision children would not be able to use a simple form of grammar, which is inherently abstract, until they had a highly language particular form – an article – which naturally is acquired at a later point. The acquisition system at the Initial State would be almost useless without such an added pragmatic device. However, by engaging a further operation DKP, rather than saying that a Bare Noun is optionally specific (H1), development is now described in the following manner: application of the pragmatic extension DKP is restricted by the emergence of the article system.

We have then a sketch of how a pragmatic operation on an economic structure provides a representation that facilitates the child’s use of grammar from the outset. The child abandons the most economical syntactic system (Bare N) and creates a more economical semantic system that dispenses with unnecessary type-shifting when articles are present and can be directly interpreted. What promotes development? This is an important question since we claim that children have all the interpretive range from the outset: DKP applies to all generic NPs (BNs), allowing the interpretation ||need shoes|| to pick both the person with specific needs and the person with the generic need. However, if the grammar provides the speaker with a better or more precise way of expressing it, the speaker will choose that form. This is explained in Chierchia’s work under the notion of semantic uniqueness. But it is important to note that the concept he proposes for restriction on type-shifters has clear parallels in the acquisition literature for the domains of lexical development (Clark 1993), morphology (Pinker 1984), and binding (Grodzinsky & Reinhart 1993). In concrete terms, the consequence is that when you need specific shoes, and your grammar has a form that is [+specific], you should say it that way. When the article is missing you retain the default mapping. This way, the course of development is set by semantic competition: the instantiation of a specific mapping of the generic concept ||shoe|| by virtue of DKP competes with the lexical, explicit form, and loses.

How much does DKP cover? Is it possible that the child never refers to “unique” objects but always to objects as an example of a kind? It is not easy to tell and our evidence and other’s work does not give a perfect answer. Maratsos (1974) experiments suggested that children did not choose a kind answer when they were told “Pick a duck” from an array of ducks and then “Now give me the duck”. This is understood by adults to mean exactly the duck taken and not an example of that kind of duck, and children behaved in an adult-like manner. However, Schafer and deVilliers (2000) were unable to replicate this result and DKP type answers were obtained in work by Matthewson (1998) and Matthewson et al. (2001) as well. The next stage of research is to understand how the child delineates the distinction between DKP and unique definite reference.

Notes

1. In developing this project, we have benefitted from questions and comments from audiences at GALA 2003, and The Romance Turn. We particularly thank G. Carlson, J. van Kampen and M. T. Guasti for helpful discussion. We are grateful to the children and teachers of the Escola Decroly de Barcelona and the Escola Bellaterra, where the experiment was conducted, and to Lisa Coca for the drawings used in the materials. The first author acknowledges the financial support of project BFF2003-08364-C02-01 of the *Ministerio de Ciencia y Tecnología* of Spain.
2. It is interesting to note that, both in Catalan and English, verbs that take semantic kinds as predicates such as *exterminate*, *develop* (‘a species’) take definite objects rather than bare noun objects. The preference is often for the definite singular, but if plural it would be a definite: the bare plural distinctly possesses the existential reading.
 - (i) a. DDT exterminated the hummingbird. (Gen)
 - b. DDT exterminated hummingbirds. (= some) (\exists)
3. See their comments on Quine’s proposal that children start out with mass reference and later develop quantized reference. They suggest that Quine may have been wrong ontologically, but correct linguistically (Chierchia et al. 1999).
4. Schafer and de Villiers (2000) point out that children acquire the part/whole distinction very early.

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