

SYNTACTIC FEATURES AND DISCOURSE FACTORS IN CHILDREN'S
INTERPRETATION OF DEFINITE DETERMINERS IN INALIENABLE
POSSESSIONS*

Ana T. Pérez-Leroux
University of Toronto

Cristina Schmitt
Alan Munn
Michigan State University

1. Introduction

One prevailing assumption within generative approaches to language acquisition is the continuity hypothesis, which states that learners' intermediate stages are possible adult grammars. As the theoretical construct of parameter has evolved towards a smaller, narrowly lexical view of parametrization, the field's perspective on the task of learning is changing as well. One important domain of language variation (and thus a central part of the learning task) pertains to how languages partition semantic spaces—how the relevant semantic features are mapped onto the relevant morphosyntactic categories. We assume that there is a universal vocabulary of interpretable features available to children's language acquisition device. A second assumption about learning properties of the syntax/semantic interface is that forms with comparable morphosyntactic distribution lexically compete for a given semantic space (forms avoid being given identical senses, as in Pinker 1984). These assumptions define the learning task as a bootstrapping process that narrows the set of syntactically relevant interpretable features to those of the target grammar. Form-sense mappings are established when lexical units are associated to specific syntactic and semantic frames.

Within the domain of definite determiners, crosslinguistic differences in the syntactic and semantic distribution of determiners constitute part of the learning problem and may give rise to non-target representations in young children. Children learning languages with comparable definite determiners may initially develop the same representation for these items, but can eventually use semantic and syntactic distributional information of competing items to narrow the domain

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of use of the definite in each language. If this proves correct, children may overgeneralize and misuse the definite in a particular language not necessarily because they have an incomplete representation or because they have mis-set a parameter, but rather because they haven't yet learned all the restrictions imposed by the competing forms in particular contexts.

Consider first, the typical use of definite determiners in English, illustrated in (1). For (1) to be felicitous, the definite must satisfy three conditions: (i) the referent of the DP must be discourse identified; (ii) the referent of the DP must be unique among other potential referents and (iii) the referent of the DP must be maximal, i.e, must include all the member of the characterized subset.

- (1) The students entered the room.

Definites in the Romance languages must also satisfy the three conditions above to be felicitous in contexts such as (1). However, the Romance languages also allow definites to be used in contexts that do not satisfy these conditions. In Spanish, for example, abstract nouns (2a), inalienable possession construal (3a), and plural generics (4a) violate the discourse identification requirement. Furthermore, inalienable possession (3a) violates maximality.

- (2) a. **La** libertad depende del desarrollo de la sociedad civil.
 b. ***The** freedom depends on the development of civil society.
- (3) a. Los maestros sacudieron **la** cabeza.
 b. #The teachers shook **the** head. (with inalienable reading)
- (4) a. **Los** pandas no están relacionados con **los** osos.
 b. #The pandas are not related to bears. (with a kind reading)

Given the fact that the English definite is unacceptable in all these contexts with the same interpretations, as shown by the (b) examples above, we could postulate a parametric distinction between English and Romance. While the definite determiner in English is always discourse-dependent and maximal, the Romance determiner may be treated as semantically weaker, since it does not need to be discourse-dependent nor maximal, its role being similar to the role of an expletive determiner (Vergnaud and Zubizarreta 1992, Longobardi 1994).

However, in particular contexts, English also allows other uses of the definite that do not satisfy all the conditions above. (5a) is a kind reading and (5b) allows an inalienable reading of the definite DP inside a prepositional phrase. Both (5a)

and (5b) violate the discourse-dependent condition and the maximality condition, respectively.

- (5)
 - a. The lion lives in Africa.
 - b. They were hit in the arm.

If these facts (1-5) are representative of the properties of definite determiners in general, then what the English child has to learn is the particular contexts in which the definite is not acceptable in English. In other words, the English child would start accepting the definite in all the contexts exemplified above and later learn that there are restrictions imposed by fine-grained syntactic and semantic properties of the determiner or by competition with other determiners. On the other hand, if the child starts with a very restricted version of the definite, allowing it only in contexts like (1), then the child should not allow the definite in contexts such as (2-5).

In this paper, we examine children's early grammars of definite determiners in one particular domain, namely the domain of inalienable possession. We report the results of an experiment that show that the definite determiner is overgeneralized in the inalienable construal (IC) both in preschool and early school-aged children, even when we carefully control discourse and pragmatic factors (uniqueness and discourse identification) and morphosyntactic factors (number in the subject and the object noun). Our results are compatible with a view in which restricting the contexts in which definites are allowed in English is subject to development. Our results however do not support either (i) an account of overgeneralization in terms of discourse-pragmatic factors, nor (ii) an account in terms of a monolithic parameter that can distinguish the definite determiner in the Romance languages and the definite determiner in English.

Before continuing, it is necessary to mention that although there is a variety of proposals in the literature to account for the differences between English and Romance in cases such as (4) (see e.g. Guéron 1985 and Zubizarreta & Vergnaud 1992), all accounts, however, depend not only on properties of the determiners, but also on properties of the different verbs and on properties of different body parts. Crucially for our study, in order for IC to obtain, the body part must be singular if there is only one per individual (6a) vs (6b), but can be plural if there is more than one per possessor (6c). Example (6a) illustrates another crucial property of IC for our study, namely the well-known fact that when the subject is plural, the morphologically non-plural inalienable body part can be interpreted distributively.

- (6) a. Los niños sacudieron la cabeza/la mano. (\surd inalienable interpretation)
 the-PL children-PL shook the head-SG/the hand-SG
 ‘The children shook their heads/their heads.’
- b. Los niños sacudieron las cabezas. (*inalienable interpretation)
 the-PL children-PL shook the heads-PL
 ‘The children shook the heads.’
- c. Los niños sacudieron las manos. (\surd inalienable interpretation)
 the-PL children-PL shook the hands.
 ‘The children shook their hands.’

2. Previous studies

Earlier work by Maratsos (1976) argued that children master the definite/indefinite distinction early, by the age of 3 or 4. Children in his studies were able to produce the correct determiner in specific and non-specific contexts. However, recent work challenges this earlier conclusion, by demonstrating that children perform in non-target ways in certain environments. For instance, children have been shown to produce definites in the absence of a common-ground referent, challenging the core of Maratsos's finding (Bryant, Matthewson and Roeper 2001, Schaeffer 1999, Matthewson and Schaeffer 2000). Other studies show that children use definites in partitive contexts (selecting one among other members of the set) (Schafer and deVilliers 1999).

Some authors have proposed that English children's grammar contained an expletive definite determiner such as the one proposed by Longobardi 1994 for the Romance languages. In a study of English-speaking children treatment of complex noun phrases, deVilliers and Roeper (1995) show that children allow extraction/binding from definite NPs, treating them as transparent domains. They attributed these non-target extractions from complex noun phrases to the availability of an expletive definite determiner. This suggestion was followed up in Ramos' (1999) study of DP development in SLI (specific language impairment) and normally-developing English speaking children. She predicted that development of DP should result in Romance type errors (inalienable interpretation with body parts) in English, and that these errors would be exacerbated in SLI. She developed an interesting act-out task in which a Ms. Potato Head character examines the content of a box of replacement body parts (Mr. Potato Head is a line of assemblable toys with interchanging body parts). In the target stimuli, possessors and definites were counterbalanced:

- (7) Wow she just touched the/her nose.

The overwhelming majority of incorrect responses with the definite were acceptance of the inalienable reading (Ms. Potato Head touching her own nose rather than the nose in the box). She confirmed her predictions about the SLI population having increased error rates with DP-related phenomena. Interestingly, she also found high error rates with the normally developing children: 30% younger group, 23% percent for the older. Comparable findings were established for Dutch by Baauw (2000). In his study, Dutch children accepted a non-target inalienable interpretation of body part nouns in sentences with definites in object position as in (8).

- (8) De drie jongetjes raakten de neus aan
'The three boys touched the nose.'

Using a short story with pictures, and a truth-value judgment task, he found that younger children had a much higher rate of acceptance of inalienable, distributed interpretation of these sentences. Target correct acceptance in this group reached only about 70%. However, both adults and older children in his study showed a substantial proportion of incorrect performance.

In summary, the previous evidence suggest that preschool age children learning a language such as English: (i) may not have full mastery of the semantic conditions on the use of definites (i.e., uniqueness or identification), and (ii) these children may also allow definites to refer to inalienable possessions in contexts disallowed in the target language.

Given the findings summarized above, as well as various theoretical and acquisition-related positions from the field, there are various competing hypotheses one can propose to account for the nature of children's non-target interpretation:

- (i) Errors with definites are the sole result of performance factors: i.e., the result of experimental conditions, poor pragmatics, or the processing demands of the task.
- (ii) English children would initially have a Romance-parameter setting. (Chierchia 1998, Ramos 1999).

- (iii) Children would have a non-target representation of definite DPs, but not necessarily identical to a Romance-like grammar. Various possibilities can be hypothesized. For instance: children initially do not project NumP as an obligatory element in the DP; intermediate grammars may contain minimal NP structure (Roeper & Pérez-Leroux 1999); children may first represent definites as syntactic anaphors (see Guéron 1985, 1999 treatment of inalienable possession), but only later as discourse anaphors; children have not yet learned that in English the possessive determiner is obligatory in this context.

These various hypotheses are capable of predicting inalienable readings of definites with body parts. Hypotheses of the first type predict more errors when there are pragmatic failures (uniqueness, maximality, etc.), than when the felicity conditions of the English definites are met. Hypotheses of the second and third type may be differentiated by considering the property of IC described in (6).

The third type of hypotheses may predict equal proportions of errors when subject and object match in plurality as when they don't, whereas the early English-as-Romance approach will predict more errors with the singular than with plural objects.

3 The experiment

3.1 Methods

To evaluate the alternative explanations for the overgeneralization of the definite we designed an act-out task in a scenario where several characters were playing with Mr. Potato Head and Cootie Bugs body parts (ears, noses, heads, arms, legs and mouths). The dolls representing the characters had soft, easy-to-move limbs. We had 3 Groovy Girls dolls and two comparably sized stuffed animals, Bear and Frog. The storyline indicated that Frog brought his toys (toy body parts, the alienable objects) so everyone could play. Thus, as shown in (9), the presentation of the task was biased towards the alienable reading, since no mention was made of inalienable body parts.

- (9) *This time Frog got a leg, some noses, an arm and two heads. He gave Bear an arm. He gave Joey a head. He gave Suzy a leg. He gave Mary another head. The noses, he didn't give to anyone.*

In articulating these scenarios, we manipulated the assignment of toy body parts to control for possession (whether a toy body part was assigned to/belonged to a character or not), and uniqueness (whether it was the only of its kind of the

body parts in the game). Children were then asked to act out a sentence with a body part noun in direct object position. The various stimulus sentences controlled for determiner (possessor and definites) and number (on subject and on object). The presentation of the study was segmented into 3 different toy assignment blocks with 2 tokens per condition counterbalanced across determiners in a total of 30 trials. Unrelated activities were interspersed between blocks.

Condition 1 and Condition 2 had singular objects and singular subjects. In both conditions the child was to perform an action in which the actor was asked to do something with the body part he was assigned to. The conditions differed in terms of the uniqueness of the body part in the context. In Condition 1 the only leg in the game was assigned to the character that had to act out the action on the leg/her leg. In condition 2 two characters were assigned a body part of the same type. If pragmatic difficulties were a source of the inalienable errors, the proportion of errors would be greater for Condition 2 than for Condition 1. These conditions are shown in (10) and (11), which present the target sentences read to the child, an illustration of the object assignment in the condition, and a summary of the target grammar predictions for each determiner given the characterization of the situation.

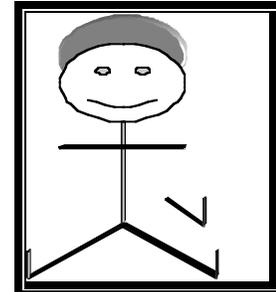
Conditions 3-5, which always had a conjoined subject, focused on the effect of grammatical number on children's willingness to interpret the definite as inalienable. In Conditions 3 and 4, the subject and object matched in plurality, and Condition 5 the object was singular. These are presented in (12)-(14).

Conditions 3 and 4 differed with respect to the pragmatics imposed by the toy assignment. Condition 3 made reference to the body part toys that had not been given to any of the participant characters, therefore excluding them as possible alienable referent for the possessor determiners. In Condition 4, the relevant toy-body parts belonged (i.e., 'were assigned to') to two of the characters.

It is crucial to note that because the body parts chosen for these conditions in Romance appeared in the plural, they could only be interpreted alienably if children were adopting a Romance type grammar, since body parts such as head and nose cannot receive inalienable readings when they appear in the plural (as discussed in (6)).

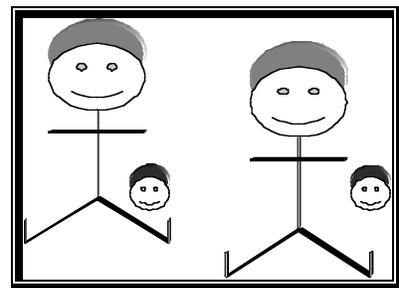
- (10) Condition 1: Singular Subject, Singular unique Object
 Suzy put **the** leg on the table.
 Suzy put **her** leg on the table.

	Definite	Possessive
Cond. 1 SgSg-Unique Characterization	Felicity satisfied for alienable	Unique possessor In principle ambiguous, possibly bias for inalienable
Idealized Target performance	0	>50



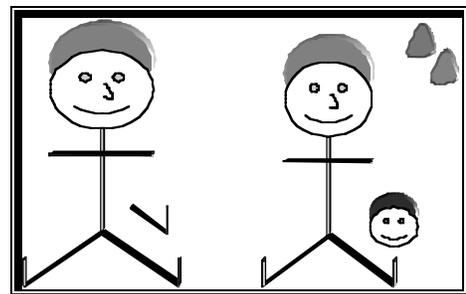
- (11) Condition 2: Singular subject, singular, non-unique object
 Mary covered **the** head.
 Mary covered **her** head

	Definite	Possessive
Cond. 2 SgSg-nonunique Characterization	Infelicitous, but accommodatable under hidden RC analysis for alienable	Contrastive possessive, expect ambiguity
Idealized target performance	some error	50



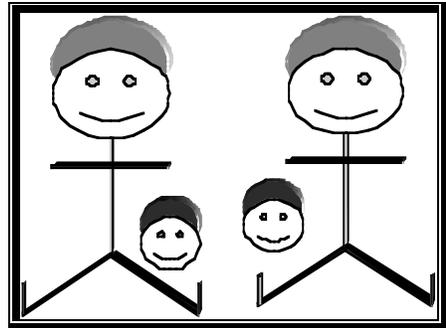
- (12) Condition 3: Plural subject, plural unassigned object
 Joey and Bear patted **the** noses
 Joey and Bear patted **their** noses

	Definite	Possessive
Cond. 3 PIPI-unassigned Characterization	Unique and maximal	Only inalienable because toy is not possessed
Idealized target performance	0	100



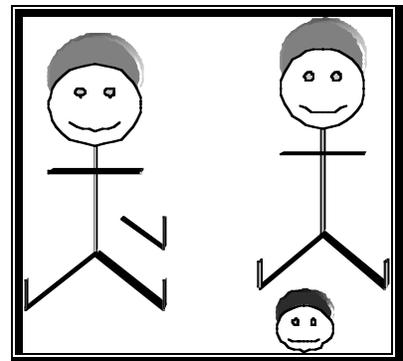
- (13) Condition 4: Plural subject, plural assigned object
 Joey and Mary covered **the** heads.
 Joey and Mary covered **their** heads.

Cond. 4 PIPI-assigned	Definite	Possessive
Characterization	<i>the</i> maximally identified, felicitous	Contrastive possessive, ambiguous
Idealized target performance	0	~50



- (14) Condition 5: Plural subject, Singular unique, assigned object
 Joey and Mary kissed **the** arm.
 Joey and Mary kissed **his** arm.

Cond. 5 PISg	Definite	Possessive
Characterization	Unique identity Alienable possession	One alienable item, or identification with one character's body part
Idealized target performance	0	Mostly alienable; Some 2-on-1 never plural self



Condition 5, with a plural subject and a singular body part object, was constructed in analogy to the distributive property of definite DPs in IC in Romance. Only one of the characters in the conjoined subject received the relevant toy object (arm). The target grammar (English) supported an interpretation of both the definite and possessor where the two characters acted on the toy part. The response where two characters acted on one character's body part was not expected but not considered impossible with the possessive pronoun. However, if both characters acted each on their own body parts, which would be compatible with a Romance-like treatment of IC.

3.2 Participants

Seventeen English-speaking monolingual children recruited in several daycares in Toronto participated in the study. The younger (n=9) ranged in age

from 3;11 to 5;2. The older children ($n=8$) ranged from 5;5 to 6;6. The adult controls were college students recruited at Michigan State University ($n=18$).

3.3 Results

Responses were videotaped and analyzed into several categories, depending on agent and object acted. For the present report, only the proportion of anaphoric (SELF) responses are considered. These are defined as inalienable readings. In the case of the plural conditions, it involved acting out the target event with each participant character acting over his own target body part, as shown in, i.e. $X \rightarrow X$'s head and $Y \rightarrow Y$'s head.

An overall repeated measure ANOVA showed significant results for all factors and interactions. Group was significant at $F_{2,26}=5.775$, $p=.008$; determiner was highly significant at $F_{1,26}=108.330$, $p<.0001$; and conditions was highly significant at $F_{4,104}=20.200$, $p<.0001$. All interactions were highly significant except conditions x determiner x group which were significant at $F_{8,104}=2.281$, $p<.027$. A Fischer PLD post hoc analysis showed adults to be significantly different from both older and younger children (critical differences of -0.167 and -0.288 , $p=.002$ and $p<.0001$, respectively). Older and younger children were significantly different with a critical difference of $-.121$, $p=.046$.

Figures 1 and 2 summarize the mean proportions of SELF responses to both determiner types. As predicted, data show that younger children allow a considerable proportion of inalienable errors with the definite determiner in both singular conditions ($\sim.3$). The error rates for definites are lower for the older children and non-existent in the adult control group. All groups treated the possessor determiner as ambiguous, with adults exhibiting a preference for the inalienable in Condition 1. Contrary to the prediction of the performance hypothesis, there is no substantial difference in the proportion of errors produced by children to the definite determiner between condition 1 and condition 2, which violates the uniqueness condition on the use of definites. A planned comparison showed the difference to be non-significant (estimated difference $=.039$. $t_{16}=.460$, $p=.651$)

Figure 1. Proportion of SELF responses to definite and possessor determiners per group in Condition 1

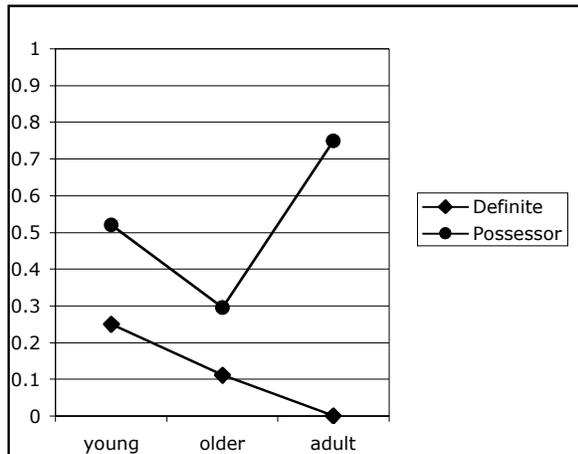
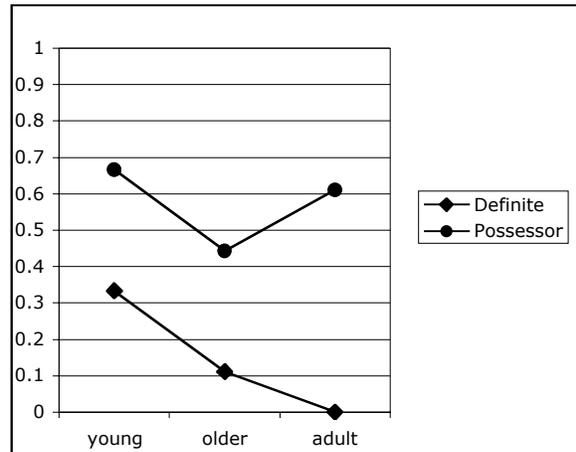


Figure 2. Proportion of SELF responses to definite and possessor determiners per group in Condition 2



Figures 3 and 4 show the data for the two matching plural conditions. The definite determiner shows no difference between conditions. Children had overall high rates of SELF responses, with a slight drop in this error for the older children. For the possessor determiner in Condition 3, where the toy body parts did not belong to the characters, the proportion of SELF responses was close to ceiling in all groups. In condition 4, they were lower than in condition 5 but still high for the children. The adult performance conformed to expectations. In contrast with the children, adults did not give SELF responses to definites, nor did they allow possessors to be fully ambiguous in condition 4, although they did in Condition 3. The planned comparisons for performance with definites showed that children did not perform significantly different in these contexts (estimated difference=.049, $t_{16}=.405$, $p=.690$).

Figure 3: Proportion of SELF responses to Condition 3

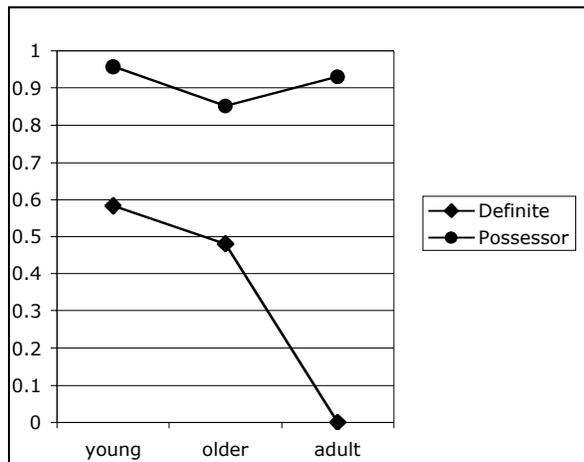
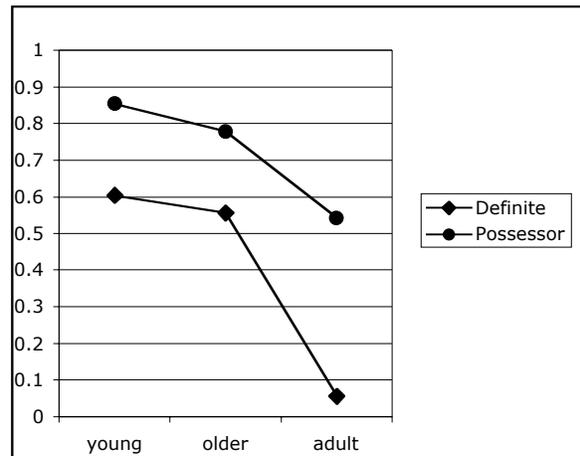
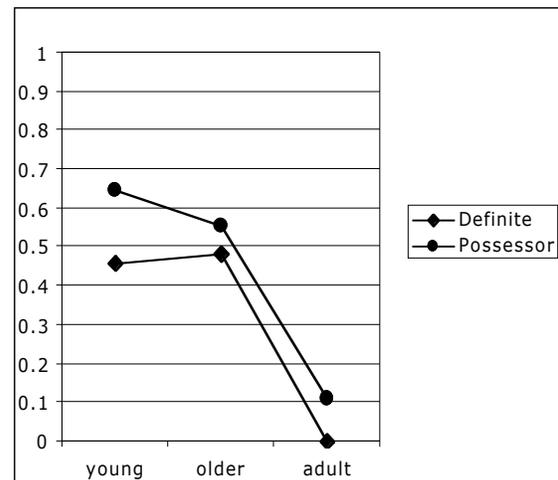


Figure 4. Proportion of SELF responses to Condition 4



The data for condition 5, the condition modeled after the Romance pattern of distributive readings illustrated in (6d), is presented in Figure 5. In this condition, we see that both groups of children had a proportion of SELF responses near 50% for both definite and possessive determiners. In contrast, adults avoided SELF responses to either determiner. For the children, this condition elicited the smallest range of contrast when compared with any of the conditions.

Figure 5: Proportion of SELF responses to Condition 5



The statistical comparison of children's SELF responses to definites in condition 4 and condition 5 did not show significant differences, challenging the predictions of the second hypothesis (estimated difference=.108, $t_{16}=1.037$, $p=.315$). That is, children's errors failed to show sensitivity to number underspecification and in this case did not resemble the Romance pattern.

3.4 Discussion

In designing our task, we used some of the methodological insights of Baauw (2000) and Ramos (1999), to examine the validity of the phenomena they uncovered, and to further explore the potential role of number in these interpretations. Even after experimental improvement to control for discourse and

pragmatic effects, children were shown to have inalienable errors. In other words, the evidence suggests contextual failure to meet the presuppositions of definite determiners does not increase availability of non-target inalienable possession readings. As such, it sheds doubt on purely performance-based accounts of the phenomena and suggests that IC is available for English definites with inalienable possession nouns in direct object position.

The manipulations involving plurals resulted in two main observations. First, there is no difference in the proportion of definite inalienable interpretations when the object is singular or plural. This suggests that children's inalienable interpretation of definites is not consistent with a direct "English as Romance" parametric account of these errors, since the error proportion did not increase when the target sentence was patterned after the Romance model. However, we acknowledge that data on the sensitivity to number by children acquiring a Romance language is needed to tease out what is developmental and what is parametric (see Pérez-Leroux et al, 2002).

The second finding observed is a dramatic increase in the proportion of errors in the definite plural conditions in comparison with the definite singular conditions. The constrained proportion of errors in the singular conditions, and their pointed developmental resolution (the older children show a clear decrease in the proportion of these errors), contrast starkly with the strong inalienable bias observable in conditions 3-5. While beyond the scope of this paper, we point to two potential sources of explanation. One possibility is to simply say that they complexity of manipulating more characters and objects biased children towards the more economical inalienable performance, as this only required the child's manipulation of two doll characters on themselves, rather than the alienable toys in the scenario in addition to the two dolls by themselves. This explanation could in fact account for all of the inalienable errors found in our study, but it could not account for the errors found in the study by Baauw (2000) or by Ramos (1999), which did not use act out tasks. An alternative account, which we are currently exploring, may involve the examination of the semantic correlates of plural number with the kind-denoting interpretation that is associated with IC (Vergnaud and Zubizarreta 1992, Pérez-Leroux et al in preparation).

6. Conclusion

The present study provides evidence for development in the acquisition of definite determiners by English children. These children seemed to allow inalienable, non-referential interpretations of definites. While the restricted presence of these structures in the locative environments suggests their availability as a grammatical default in the adult grammar (Roeper 1999), our evidence

indicates that children are allowing for a broader distribution definite determiners. What remains to be seen is whether they do not know the exact properties of the definite or whether they do not know that the possessive pronoun is a better candidate for insertion in cases of inalienable construal.

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