CHILDREN'S POSSESSIVE STRUCTURES: A CASE STUDY[1]

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Two-and three-year-old children generally go through a stage during which they sporadically omit possessive *'s*, so alternating between saying (e.g.) *Daddy's car* and *Daddy car*. At roughly the same age, children also go through a stage (referred to by Wexler 1994 as the **optional infinitives** stage) during which they sporadically omit the third person singular present tense *+s* inflection on verbs, so alternating between e.g. *Daddy wants one* and *Daddy want one*. The question addressed in this paper is whether children's sporadic omission of possessive *'s* is related to their sporadic omission of third person singular present tense *s*—and if so, how. This question is explored in relation to data provided by a longitudinal study conducted by Joseph Galasso of his son Nicolas between ages 2;3 and 3;6 (based on transcripts of weekly audio recordings of Nicolas' speech production).

Nicolas' speech production provides some prima facie evidence of a relation between the acquisition of possessive *'s* and the third person singular *s*: prior to age 3;2, Nicolas used neither possessive *'s* nor third person singular *s* in obligatory contexts; it is only from age 3;2 on that we find both morphemes being used. The table in (1) below shows the relative frequency of use of possessive *'s* and third person singular present tense *s* in obligatory contexts before and after age 3;2:

(1) OCCURRENCE IN OBLIGATORY CONTEXTS

AGE	3sgPres *s*	Poss *'s*
2;3-3;1	0/69 (0%)	0/118 (0%)
3;2-3;6	72/168 (43%)	14/60 (23%)

Typical examples of nominals and clauses produced by Nicolas at the relevant stages are given in (2) and (3) below respectively:

(2) (a) That *Mommy* car (2;6). No *Daddy* plane (2;8). *Batman* (2;11 in reply to Whose it is?). It *Daddy* bike, no *Baby* bike. Where *Daddy* car? (3;0).
(b) *Daddy's* turn (3;2). It's the *man's* paper (3;4). It's *big boy Nicolas's*. It's *Tony's*. What's the *girl's* name? Where's *Zoe's* bottle? (3;6)

(3) (a) Baby *have* bottle (2;8). No Daddy *have* Babar (2;9). The car *go*. (2;11). The other one *work* (3;0). Here *come* Baby (3;1).
(b) Yes, this *works.* This car *works.* It *hurts.* The leg *hurts.* Barney leg *hurts.* It *rains* (3;2).

The data in (1-3) suggest a potential parallel between the acquisition of third person singular *+s* and possessive *'s*, and raise the obvious question of why there should be such a parallel.

From a morphological perspective, such a parallel would not be unexpected, given that possessive *'s* and third person singular *s* (e.g. the contracted form *'s* of the auxiliary *is*) have the same range of overt allomorphs, as we see from (4) below:

(4)

ALLOMORPH	AUXILIARY	POSSESSIVE
/s/	Pat*'s* coughing	Pat*'s* cough
/z/	Teddy*'s* coughing	Teddy*'s* cough
/iz/	Madge *'s* coughing	Madge *'s* cough

Moreover, there are also potential syntactic parallels between the two. Under the analysis of clause structure assumed in Chomsky 1981 and much subsequent work, a clause such as *Pat's coughing* would contain an IP projection of the simplified form (5) below:

(5) $[_{IP}$ Pat $[_{I}$'s] coughing]

with *'s* encoding both present tense and agreement with a third person singular subject-specifier like *Pat*. (See Galasso 1999 pp.126ff for an alternative account showing the verbal morpheme *+s* as exclusively marking Tense). Under the analysis of possessive structures in Kayne (1994: p. 105), a nominal structure such as *Pat's cough* would likewise contain an IP projection with the simplified structure (6) below (with I being a nominal rather than a verbal inflectional head):

(6) $[_{IP}$ Pat $[_{I}$'s] coughing]

and it might be argued that *'s* serves to encode agreement with a third person singular subject-specifier like *Pat*. (Similar analyses of English possessive structures are found in Chomsky 1995 p. 263, Zribi-Hertz 1997, and Radford 1997 p. 278). This is by no means implausible from a universalist perspective since we find a variety of languages which overtly mark possessor agreement: languages as diverse as American Sign Language, Dutch and Turkish have possessor agreement structures paraphraseable in English as *'Daddy his car', 'Mummy her car'*.

If both possessive *'s* and third person singular *s* are reflexes of an agreement relation between an inflectional head and its specifier, an obvious suggestion to make is that omission of third person singular *s* and possessive *'s* may both reflect agreement failure (i.e., failure to encode the agreement relation between an inflectional head and its specifier). In the terminology of Schütze and Wexler (1996) and Schütze (1997), *s*-less forms may be the result of the relevant inflectional head being **underspecified** with respect to the specifier-agreement features it carries. In simplified schematic terms, we might say the clausal structures like *Mummy's driving* contain an IP of the simplified form (7a) below (with INFL carrying agreement features matching those of its subject-specifier), and the corresponding *s*-less clause *Mummy driving* has the partial structure (7b) (with INFL being

underspecified in respect of its subject-agreement features):

(7) (a) $[_{IP}$ Mummy $[_{I}$ +agr 's] driving]

(b) $[_{IP}$ [Mummy $[_{I}$ -agr ø] driving]

In much the same way, we might suggest that possessive structures like *Mummy's car* contain an IP projection like (8a) below headed by an inflectional node fully specified for agreement with its possessor-specifier *Mummy*, whereas *s*-less possessives like *Mummy car* contain an IP projection like (8b) below with an inflectional head which is underspecified with respect to agreement with its possessor-specifier[2]:

(8) (a) $[_{IP}$ Mummy $[_{I}$ +Agr 's] car]

(b) $[_{IP}$ Mummy $[_{I}$ -Agr ø] car]

A further assumption implicit in the analysis in (7/8) is that *'s* is only used where INFL is fully specified in respect of its agreement properties; otherwise, INFL is null.

The assumption that *s*-less forms may be the result of agreement underspecification has interesting implications for the case-marking of the specifier in both nominal and clausal structures. Schütze (1997) argues that there is a cross-linguistic correlation between case and agreement (e.g. that an INFL which is specified for subject-agreement has a nominative subject). Making rather different assumptions from his (for reasons which do not affect the conclusions drawn here), let us suppose that adult English has the following case system:

(9) An overt (pro)nominal is:
(a) nominative if in an agreement relation with a verbal INFL
(b) genitive if in an agreement relation with a nominal INFL
(c) objective otherwise (by default)

If we assume (following Schütze and Wexler) that children have acquired the morphosyntax of case and agreement by around two years of age, and that two and three-year old children go through a stage during which functional heads are optionally underspecified with respect to the features they encode, we can provide a straightforward account of why two-and three-year olds alternate between forms like *I'm playing* and *Me playing*. The two types of clause would have the respective (partial) structures (10a/b) below:

(10) (a) $[_{IP}$ I $[_{I}$ +agr 'm] playing]

(b) $[_{IP}$ Me $[_{I}$ -agr ø] playing]

Since INFL is fully specified for agreement in (10a), the overt auxiliary *'m* is used, and the subject is nominative by (9a). But since INFL is underspecified with respect to agreement in (10b), it remains null and has a default objective subject by (10b).
If—as suggested in (8a/b) above—possessive nominals contain an IP headed by an INFL that may either be fully specified or underspecified for agreement, we would expect to find a similar alternation between nominal structures like (11a) below with genitive possessors and those like (11b) with objective possessors:

(11) (a) $[_{IP}$ My $[_{I}$ +agr ø] dolly]

(b) $[_{IP}$ Me $[_{I}$ -agr ø] dolly]

In (11a), INFL is fully specified for agreement with its possessor-specifier and so the possessor has genitive case by (9b); but in (11b), INFL is underspecified for agreement, and so its possessor-specifier has objective case by (9c). In both structures, INFL is null because *'s* is used only where the specifier is third person.

In short, the assumption that children's possessive structures may optionally be underspecified with respect to agreement predicts that children who go through such an underspecification stage in the acquisition of possessives should alternate between structures with genitive and objective possessors. The use of objective possessors has been reported for Dutch by Hoekstra and Jordens (1994), but not for English.

If we look at the earliest first person singular possessor structures produced by Nicolas, we find that objective *me* possessors predominate at ages 2;6-2;8, and that genitive possessives (viz. the weak form *my* and the strong form *mine*, with occasional early confusion between the two) are initially relatively infrequent, but gradually become more and more frequent until they predominate by age 3;0. The table in (12) below shows the relative frequency of objective and genitive possessors used by Nicolas at various ages:

(12) **Frequency of occurrence of first person singular possessors**

AGE	OBJECTIVE ME	GENITIVE MY/MINE	NOMINATIVE I
2;6-2;8	53/55 (96%)	2/55 (4%)	0/55 (0%)
2;9	11/25 (44%)	14/25 (56%)	0/25 (0%)
2;10	4/14 (29%	10/14 (71%)	0/14 (0%)
2;11	5/24 (21%)	19/24 (79%)	0/24 (0%)
3;0	4/54 (7%)	50/54 (93%)	0/54 (0%)
3;1-3;6	6/231 (3%)	225/231 (97%)	0/231 (0%)

Examples of first person/sing possessive structures produced by Nicolas are given below:

(13) (a) That *me* car. Have *me* shoe. *Me* and *Daddy* (= Mine and Daddy's).
Where *me* car? I want *me* car. I want *me* bottle. I want *me* woof (2;6-2;8).
(b) I want *me* duck. That *me* chair. Where *me* Q-car? No *me,* daddy (= It isn't mine, Daddy). *Me* pasta. *Mine* pasta. *My* pasta. In *my* key. It *my* (= It's mine). No book *my* (=The book isn't mine.)

(c) It is *my* TV. Where is *my* book? Where is *my* baseball? Don't touch *my* bike. I want *my* key. It's *my* money (3;0).

In terms of the analysis outlined in (11) above, the picture which the data in (12) seem to suggest is that the possessive structures produced by Nicolas are initially predominantly underspecified for possessor-agreement, with agreement gradually being specified more and more frequently (until it exceeds the traditional 90% correct use threshold by the time he is 3 years of age).

Interestingly, there are potential parallels to be drawn with Nicolas' use of first person singular subjects. As the examples in (14) below illustrate, Nicolas alternates between nominative and objective subjects in his early clause structure:

(14) (a) *I* am me. *I* am Batman. *I*'m sick (2;8). *I* am Batman. *I* am Q. *I* am car (2;9)
(b) *Me* Q (2;8 = I am Q). *Me* in there (=I'm in there). *Me* car (= I am a car) *Me* wet (= I'm wet). (2;9)

The table in (15) below shows the relative frequency of *I* and *me* subjects in copular sentences:

(15) **Frequency of *I/me* subjects in copular sentences**

AGE	NOMINATIVE I	OBJECTIVE ME
2;6-2;8	10/14 (71%)	4/14 (29%)
2;9	15/19 (79%)	4/19 (21%)
2;10-3;0	51/55 (93%)	4/55 (7%)
3;1-3;6	105/111 (95%)	4/111 (5%)

In terms of the agreement-underspecification analysis, clauses such as *I'm sick* and *Me wet* might be argued to have the respective simplified structures (16a/b) below:

(16) (a) $[_{IP}$ I $[_{I}$ +agr 'm] sick]

(b) $[_{IP}$ Me $[_{I}$ -agr ø] wet]

In (16a) INFL is fully specified for agreement and so is realised as '*m* and has a nominative subject by (9a), whereas in (16b) INFL is underspecified for agreement and so has a null realisation and an objective subject by (9c). The data in the tables in (12) and (15) would suggest that subject-agreement is acquired more rapidly than possessor-agreement: this may (in part) reflect the fact that agreement with a first person singular

subject is overtly encoded on INFL (by use of *am/'m*), whereas agreement with a first person singular possessor is not overtly encoded on D (which is null).

If we turn now to look at structures with second person possessors, we find that these only appear in the transcripts from 3;2 onwards. The predominant second person possessor form is initially *you*, but this is gradually ousted by *your* over the next few months, as the figures in the table in (17) below illustrate:

(17) **Frequency of second person possessors**

AGE	YOU	YOUR
3;2-3;4	14/16 (88%)	2/16 (12%)
3;5	7/34 (21%)	27/34 (79%)
3;6	2/29 (7%)	27/29) (93%)

Typical examples of second person possessor structures produced by Nicolas are given below:

(18) (a) No *you* train. (=It's not your train). No it's *you* train, no (idem). No *you* baby, Mama baby. This is *you* pen (3;2)

(b) That's *your* car. It's *you* elephant. It's *you* turn. It's *you* kite. It's *you* plan. I got *you* plan. Close *your* eyes. It *you* house? No it's *you* house. Where's *you* house? Where's *you* bed? Where's *your* friend? (3;4)

It seems reasonable to suppose that *your* possessors are genitive (as in adult English), and that (since Nicolas never uses nominative possessors) *you* possessors are objective. In terms of the analysis proposed here, nominals like *your car/you car* would have the respective (sub)structures (19a/b) below:

(19) (a) $[_{IP}$ your $[_{I}$ +agr ø] car]

(b) $[_{IP}$ you $[_{I}$ -agr ø] car]

In (19a), INFL is fully specified for agreement with its second person possessor-specifier and so the possessor has genitive case by (9b); but in (19b), INFL is underspecifed for agreement, and so its possessor-specifier has objective case by (9c). INFL is null in both (19a) and (19b) because the overt possessive morpheme *'s* is used only where the possessor is third person. Although we might expect to final a parallel change from objective to nominative subjects in clausal structures, we clearly cannot test this empirically in any straightforward fashion, because the pronoun *you* serves a common nominative/objective function.

The only other pronominal possessors used by Nicolas are the third person masculine singular forms *him/his*, which first appear in the transcripts at age 3;6. 10/13 (77%) of the

relevant structures have an objective *him* possessor, the remaining 3 (23%) having a genitive *his* possessor. An exhaustive list of the relevant structures is given in (20) below:

(20) (a) It's *him* house. It's *him* hat (x2). *Him* eye is broken. *Him* bike is broken.
I want to go in *him* house. Help *him* legs. What's *him* name (x3)
(b) What's *his* name (x3)

In terms of the analysis presented here, nominals such as *his name/him name* would have the respective (simplified) structures (21a/b) below:

(21) (a) $[_{IP}$ his $[_{I}$ +agr ø] name]

(b) $[_{IP}$ him $[_{I}$ -age ø] name]

We find a genitive *his* possessor by (9b) in (21a) where INFL is fully specified for possessor-agreement, and an objective *him* possessor by (9c) in (21b) where INFL is underspecified for agreement.

An obvious question to ask is whether we find parallels between third person singular masculine possessors and third person singular masculine subjects. Typical copular clauses with third person singular subjects produced by Nicolas at 3;6 are illustrated below:

(22) (a) Here's him. Where's him? Him is alright. Him is my friend.
Him is a big woof-woof. Him is hiding. What's him doing?
Where's him going? Where's him? Where is him?
(b) What him doing? Him blue. Him alright. Him dead. Him my friend.
Him not my friend.
(c) He's happy. He's bad. He is a bad boy. He's in there.
(d) He happy. He a elephant.

25/32 (78%) of the copular sentences within third person singular subjects produced by Nicolas at 3;6 have objective *him* subjects (a figure comparable to his 77% use of *him* possessors), with the remaining 7/32 (22%) having nominative *he* subjects (compared to 23% use of *his* possessors). This is clearly consistent with our view that possessors and subjects show a related pattern of development.

We can summarise the range of possessive structures used by Nicolas in the following terms. We find the same overall pattern of development with all three types of pronominal possessor which he uses: in each case, the earliest possessive nominals he produced have objective (*me/you/him*) possessors, and these are gradually ousted by genitive (*my/your/his*) possessors. Under the analysis suggested here, the transition from objective to genitive possessors reflects the transition from an early nominal structure with an inflectional head underspecified for possessor-agreement to a later nominal structure with an inflectional head fully specified for agreement. If (following Kayne) we take possessive *'s* to be a possessor-agreement inflection, there are obvious parallels here with the development of *s*-possessives: as we saw in (1-2) above, the earliest nominal possessor

structures produced by Nicolas are *s*-less forms like *Daddy car*, and these are clearly consistent with the view that children's early possessive nominals contain an IP with an inflectional head which is underspecified for possessor-agreement.

Moreover, there are interesting potential parallels between the development of possessor+noun structures and subject+verb structures. Just as Nicolas fails to mark possessor agreement at all in nominal structures like *Baby bottle* until age 3;2 (and thereafter goes through a period of optional marking possessor-agreement), so too he similarly fails to mark subject-agreement in clausal structures like *Baby have bottle* until 3;2 (and thereafter goes through a period of optionally marking subject-agreement). Similarly, just as we find a transition from nominal structures with objective possessors (like *me car, you car, him car*) to structures with genitive possessors (like *my car, your car, his car*), so too we find a parallel transition from clausal structures with objective subjects (like *Him naughty*) to structures with nominative subjects (like *He's naughty*). If we assume that genitive and nominative case are checked via an agreement relation with a nominal and verbal inflectional head respectively whereas objective case is a default form used in agreementless structures, the gradual change from objective possessors and objective subjects to genitive possessors and nominative subjects reflects a parallel change from a structure headed by an agreementless INFL to one fully specified for subject-/possessor-agreement.

What all of this might suggest is a three-stage model in the acquisition of the morphosyntax of agreement. In the initial stage, agreement is not marked: consequently, subjects and possessors carry default objective case, and there is no use of possessive *'s* or third person singular *+s*. In the second stage, agreement is optionally marked: subjects carry nominative case and verbs carry third person singular *s* if agreement is marked, but subjects carry default objective case and verbs don't carry third person singular *s* if agreement is not marked; likewise, possessors carry genitive case and the possessive inflection *'s* is used if possessor-agreement is marked, but possessors have default objective case and no *'s* is used if agreement is not marked. In the third stage, children attain adult-like competence, and mark agreement in obligatory contexts, resulting in the correct use of genitive possessors, nominative subjects, possessive *'s* and third person singular *+s* in obligatory contexts.

Not surprising, the seemingly clear picture painted above is obfuscated by lexical factors (i.e. by the fact that different lexical items are acquired at different stages). For example, genitive *my* appears in the earliest transcripts, *your* first appears at 3;2, and *his* at 3;6; likewise possessive *'s* and third person singular *s* both appear at 3;2 (though the irregular first person singular forms *am/ 'm* appear at 2;8). The obvious consequence of this is that during stage 2 (i.e. the *optional agreement* stage), children's grammars license both agreement-specified and agreement-underspecified structures, but the relevant structures can only be produced if the child has the lexical resources to realise them. So, for example, at age 3;0 Nicolas is at the *optional agreement* stage and so would be expected to alternate between possessive nominals like *my car/me car*, and *Daddy's car/Daddy car*: but because he has acquired both *me* and *my* (but not possessive *'s*) at this stage, the actual range of possessive structures he produces is *my car/me car/Daddy car*. A further complicating

factor is that when a new pronoun form is acquired, it can take several months before it is used productively. It seems likely that newly acquired items are initially difficult to access (becoming easier as time goes by), and this is why we find the observed pattern of a gradual increase in the frequency of their use.

Interestingly, the analysis presented here is consistent with the findings from a study by Ramos and Roeper (1995) of an SLI child (JC) between ages 4;4 and 4;6. JC alternates between objective and genitive possessors (e.g. 56% of his first person singular possessors are objective *me* and 44% genitive *my*), but has 0% use of possessive *'s* and third person singular *s* in obligatory contexts. In other words, JC would appear to be at the same stage which Nicolas reached at 2;9. In order to demonstrate that the use of *me* possessors is a competence error (reflecting a grammatical deficit—more specifically, an agreement deficit) rather than a performance error (resulting from e.g. retrieval failure in the sense of Rispoli 1994, 1995, 1997), Ramos and Roeper conducted a comprehension experiment on JC in which he was asked to match sentences with pictures denoting possession or action. They noted that in response to the following test sentences:

(23) The girl saw me paint/dress/bat/ski

in 4 out of 5 cases JC pointed to pictures denoting possession, suggesting that his grammar systematically licensed objective possessors.

The overall conclusion which the findings reported in this paper lead to are the following. There is an interesting symmetry between the development of subject+verb structures on the one hand and possessor+noun structures on the other. Nicolas seems to pass through an initial *no inflection* stage during which subject-agreement and possessor-agreement are not marked (a stage characterised by the use of objective possessors/subjects and the omission of possessive *'s* and third person singular *s*). At around the age 2;6 he seems to enter an *optional inflection* stage at which he alternates between agreement-specified forms like *my car* and *I'm sick* and agreementless forms like *me car* and *Me wet*: however, the fact that different lexical items are acquired at different ages means that some agreement-specified forms (like *Daddy's car* and *It works*) appear later than others. This *optional inflectional* stage lasts until the end of the transcripts at 3;6 (though by then agreement forms are generally well established and strongly preferred where lexical resources permit and where an item is well enough established not to cause retrieval problems). The overall conclusion we reach is that the *optional infinitives* stage which two-and three-year-old children go through should more properly be thought of as an **optional inflection** stage during which both nominal and verbal inflectional heads may be underspecified in respect of the features they encode (the partial features which we have been concerned with here being agreement features).

Notes:

1. This is the text of a paper presented to the annual convention of the *American Speech and Hearing Association* in November 1977.
2. Following Schütze and Wexler 1996, the notation [+agr] is used as an informal way of indicating that INFL carries a set of person/number features which agree with those of its specifier, and the notation [-agr] serves to indicate that the relevant features are underspecified in some way. The discussion here is simplified in various respects, for ease of exposition. For example, we have marked only whether INFL carries a fully specified set of agreement features or not, and not represented other features (e.g. tense) carried by INFL. We have also ignored the possibility that structures like (7b) may equally result from underspecification of the tense properties of INFL—as claimed in Schütze and Wexler (1996).

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