

NOTE

**Theory and methods in the study of the development
of case and agreement: a response to Schütze***

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ABSTRACT

Two recent papers Wexler, Schütze & Rice (1998) and Rispoli (1999a) reach different conclusions concerning the relationship between finiteness marking and pronoun case errors. Wexler *et al.* claim they are linked, whereas Rispoli finds little evidence for such a linkage. Wexler *et al.* discounted data from children who made pronoun case errors in 100% of their attempts at a subject pronoun, whereas Rispoli (1999a) included data from such children. This methodological difference may account for our differing conclusions. Schütze (2001) defends the omission of these data, claiming that children who make a pronoun case error 100% of the time do so because the correct pronoun case form is not in the child's productive inventory. Longitudinal data is presented showing the inadequacy of this assumption. Children may err without variation AFTER a period of variation, indicating that these children have knowledge of the correct form. Apparent methodological differences between the two papers reveal deeper theoretical biases. The paradigm building approach taken by Rispoli views longitudinal variation of this sort as a reflection of lexical retrieval principles at work in a developing paradigm. In contrast, the Agr/Tns Omission Model of Wexler *et al.* finds such variation an uncomfortable inconvenience.

INTRODUCTION

Pronoun case errors are a hallmark class of errors in the development of English, but until recently these errors had received only occasional attention from researchers (Gruber, 1967; Huxley, 1970; Webster & Ingram, 1972; Tanz, 1974; Kaper, 1976; Chiat, 1981; Budwig, 1989; Loeb & Leonard,

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1991; Vainikka, 1993). In the past several years two distinct theoretical approaches to the phenomena of pronoun case errors have emerged.

I have been the chief exponent of one of these approaches. Articulation of the approach began with Rispoli (1994), and has been revised and expanded in subsequent research (Rispoli, 1998*a, b*, 1999*a*). The approach holds that pronoun case errors are the reflection of a PARADIGM BUILDING PROCESS. Children must learn the word-specific paradigms of the personal pronouns. Pronoun case errors are part of the process of learning these idiosyncratic paradigms. The proximal, or immediate mechanism responsible for the errors is a failure to correctly retrieve a word form from these still-being-learned paradigms. Each word form has a retrieval strength that is relative to the strength of other forms in the paradigm. When the grammatical features of PERSON, NUMBER and CASE fail to converge on the correct form, these strengths become a factor in determining which form will be produced. Beyond the retrieval strength of word forms, there is a layer of phonological structure from which the word forms are built, and this phonological structure also plays a role in motivating error patterns.

The other theoretical approach, now called the Agr/Tns Omission Model (ATOM) (Wexler *et al.*, 1998) emerged out of work on the development of syntax (Radford, 1990; Wexler, 1994). The essential tenet of this approach is one of LICENSING. The finiteness feature Agr (agreement) licenses the case of the subject (Schütze & Wexler, 1996; Ingham, 1998). If the Agr feature surfaces in a clause, then nominative case must be licensed. Subject pronoun case errors are basically a reflection of the state of a child's syntax.

It has taken a while to sort things out, but it is clear now that the two approaches make different empirical predictions in at least three areas. The first area has to do with developmental paths. In Rispoli (1998*a*), I presented evidence that children who specialize in *me* as replacement for *I* take a different developmental path than children who specialize in *my* as a replacement for *I*. In contrast, Schütze (1999*a*) claims that these errors reflect separate stages in the development of INFL. However, the evidence for Schütze's claims is extremely weak (Rispoli, 1999*b*). The second area of differing prediction has to do with the status of non-stereotypic errors such as nominative overextensions (e.g. *he* for *him* or *his*). According to Schütze, 'there are no case errors in object position, and few errors in possessor position' (1997, p. 230). The fact that such errors DO EXIST (Rispoli, 1994) is trivialized by Schütze as '... production errors ..., and mishearings and transcription errors' (1999*b*, p. 754). However, in research using multiple databases (Rispoli 1994, 1998*b*, 2000), I have presented evidence that such errors are systematic and reflect a combination of the retrieval strengths of word forms and phonological micro-structure of the word forms during the learning period. The presence of the non-stereotypic errors and their relationship to phonological structure has been corroborated independently

in the research of Ogiela (1995), research that was explicitly designed to test the predictions in Rispoli (1994).

The third area in which the two approaches make differing predictions concerns the relationship between agreement marking and subject pronoun case errors at the level of individual utterances. This is the area of differing prediction that has come under most recent discussion (Rispoli, 1999*a*; Schütze in press). According to Schütze, 'NonNOM subjects essentially never co-occur with agreeing verb forms' (Schütze, 1997, p. 230). In direct contrast, the paradigm building approach predicts their occurrence '... at a specific juncture in development, namely, when the child's MLU has risen to a point at which the child is producing finiteness markers, and when the child is simultaneously also making subject pronoun case errors' (Rispoli, 1999*b*, p. 1020). The evidence in favour of ATOM has been slim. In Schütze & Wexler (1996) and Schütze (1997) we see χ^2 analyses that collapse data across enormously long developmental time spans, rendering the results uninterpretable. Wexler *et al.* (1998) primarily used differences between means to support their claims. When they did attempt a test of association, a non-parametric test for the significance of the difference between two proportions, they unfortunately pooled their subjects' data, collapsing across subjects, rendering the results invalid. Rispoli (1999*a*) directly tested the hypothesized association with binomial and χ^2 tests on a child by child basis, and found no evidence supporting this prediction of the ATOM. The best evidence offered in support of ATOM, a re-analysis of Nina's data (Schütze, 1997) is weak. As Vainikka (1993) showed, Nina's apparent association is an artifact of collapsing the 3Psg masc pronoun, which had very few subject case errors, with the 3Psg fem pronoun, which was clearly an error pocket. In all fairness, it should be pointed out that Rispoli (1999*a*) also collapsed across pronouns and came out with negative result. However, Rispoli (1999*a*) did not collapse developmental time periods as Schütze (1997) did routinely. In recent research, Pine, Croker & Gobet (2000) provides evidence that the two pronouns should NOT be collapsed. When they analysed the feminine and masculine pronouns SEPARATELY, they found that *her* for *she* was far more likely to appear with agreeing forms than was *him* for *he*.

The pronoun paradigm building hypothesis allows for the combination of subject pronoun case errors and the marking of agreement in the same sentence. Child sentences of this sort exist because pronoun case errors can take on a life of their own. Pockets of error that can persist while other aspects of the child's grammar, such as the marking of agreement, is becoming more adult-like. One of the most likely error pockets to occur is in the 3psg fem. pronoun, where *her* replaces *she* (Rispoli, 1994; Moore, 1995). The two approaches offer different explanations as to why error pockets form. In the paradigm building approach error pockets can form because one form (e.g. *her*) rapidly grows in retrieval strength whereas its competitor (e.g. *she*) does

not. An important factor leading to this rapid growth in retrieval strength is the ‘double-cell’ effect (Rispoli, 1998*b*, 2000) that arises because *her* fills two cells of the 3Psg fem paradigm, both the objective and genitive cells. In Schütze’s approach, the abundance of *her* for *she* errors in children is dealt with by two strategies. The first strategy is to blame them on input frequency (Schütze, 1999*b*). However, this account has not been fully worked out, and appears somewhat *ad hoc* (Rispoli, 2000). The second strategy is to ‘say it ain’t so’. The child massively replaces *her* for *she* because the child lacks a representation of *she* as a word form in the 3Psg fem paradigm. In other words, the error pockets are an illusion or artifact.

These differing approaches to the origin of error pockets are the apparent source of methodological differences. In Rispoli (1999), I used the data from children who invariably replaced the nominative form with the objective form, but Wexler *et al.* (1998) excluded the data from such children. As the authors write:

If the child ... has only the non-Nom form of a pronoun (e.g. *her* but not *she* ...) then the non-Nom form could appear with agreeing verbs ... Thus, children with only one form of 3Sg masculine or feminine pronouns should not be counted in assessing a dependency between subject case and Infl ... (Wexler *et al.*, 1998, p. 336)

The position espoused by Wexler *et al.* is founded on the notion that if the child does not KNOW that there is a nominative form in the paradigm, the child will always replace the nominative form with a non-nominative form, whether or not the clause being produced has finiteness marking. I would argue that this tack can lead to methodological imprudence. But make no mistake, this is not just a matter of methodology. There are serious theoretical considerations involved. Ultimately, the need to resort to ‘productive inventory’ in explaining serious counterexamples reflects a major theoretical weakness in the ATOM (Schütze 2001).

First let us consider the kind of precautions that should be adhered to before deciding to exclude participant subjects’ data. Obviously, one would want a developmental history to determine whether a child has a gap in their productive inventory. In Wexler *et al.* (1998) all children who were invariant with regard to the marking of subject case pronouns were excluded. The justification for the exclusion of these data was apparently the behaviour of the child at the time of testing. There was no attempt to establish the history of these individuals in the report of their research. We have no way of knowing whether the case form used for marking the subject PRIOR TO TESTING was either variable or invariable. It is one thing to say that a child’s behaviour does not vary at the time of observation, it is another thing to assume that the child’s behaviour never varied before your observation.

The exclusion of these data reveals a deep bias against the theoretical

position that pronoun case errors fluctuate in significant ways over the course of development (Rispoli, 1998a; 2000). These fluctuations reflect a continuing competition between word forms. A child may produce a form such as *she* correctly at one point in learning only to have that form lose ground to an aggressive competitor like *her*. Because of this dynamic competition, the abstraction of a 'productive inventory' becomes problematic to say the least. To illustrate the kind of thing that can happen, I would like to present three sets of longitudinal data. Two of these sets come from children who were studied in Rispoli (1994). I have chosen them because these are the only two children from that study who produced 10 or more *her* for *she* errors without any correct *she* productions during a monthly sample. The other children whose data I used in Rispoli (1994) may have produced only *her* for *she*, but they did not err invariably with a frequency of ten or more incorrect productions in a single monthly sample. I would also like to present data from Nina (Suppes, 1973). I do this for two reasons. First Nina's data figures prominently in Schütze's attempt to justify the ATOM. Second, Nina exhibited only marginal variation in the marking of the 3Psg fem subject, so that she makes an interesting comparison to the two children from Rispoli (1994).

Between the ages of 1;7 and 3;0, child participant 2 from Rispoli (1994) was observed to produce 14 correct *she* subjects and 21 *her* for *she* errors. As can be seen in Table 1, her observed production of 3Psg fem subjects becomes categorical in the replacement of *her* for *she* at 2;11. In that monthly sample, she was observed to produce 11 *her* for *she* errors and no correct *she* nominatives. However, the categorical nature of this child's production of 3Psg fem subjects at 2;11 months did not reflect a gap in her inventory. In fact, between 1;7 and 2;11 months of age, this child was observed to produce 10 correct *she* subjects and 7 *her* for *she* errors. The categorical nature of this child's pronoun case error evolves out of a long period of variation, in which alternate, competing forms were sporadically produced. Turning to Table 1, we see that child participant 8 from Rispoli (1994) produced 22 correct *she* subjects and 63 *her* for *she* errors between the ages of 1;4 and 3;0. At 2;5 he was observed to produce 14 *her* for *she* errors, and no correct *she* subjects. Once again, however, the categorical nature of his production of non-nominative 3Psg fem subjects did not represent a gap in knowledge. Between 1;4 and 2;5, he was observed to produce 9 correct *she* subjects, and 7 *her* for *she* errors. Just as with participant 2, the categorical nature of the error arose out of a long period of sporadic variation.

The data from Nina show a pattern very similar to that of two previous children, with one slight difference. Nina appears to have produced just a few more correct *she* subjects. Nina was observed (somewhat erratically) from 1;11 until 2;5. At 2;5 there is a long gap in sampling, which finally resumes at 2;9. Vainikka (1993) and Schütze & Wexler (1996) analysed the data from

TABLE 1. *Frequency of correct she subjects and her for she errors for 3 children*

Age in months	Child 2 3Psg subjects		Child 8 3Psg subjects		Nina 3Psg subjects	
	she	her	she	her	she	her
1;4			1			
1;5						
1;6						
1;7		1				
1;8						
1;9						
1;10	1			2		
1;11	1					1
2;0		1				
2;1	3		1	2		
2;2				2	2 (0.04)	43 (0.96)
2;3			6 (1.00)		1 (0.08)	12 (0.92)
2;4	1		1	1	1 (0.14)	6 (0.86)
2;5				14 (1.00)	7 (0.09)	73 (0.91)
2;6	1	2	3 (0.09)	31 (0.91)		
2;7			4 (0.57)	3 (0.43)		
2;8	1			2		
2;9			3 (0.50)	3 (0.50)		
2;10	2 (0.40)	3 (0.50)		1		
2;11		11 (1.00)	2	2		
3;0	4 (0.57)	3 (0.43)	1			

Note: Percentages are calculated only when the number of targets is five or greater.

1;11 to 2;5, and I shall follow suit. Unlike them, I shall present the data broken down into monthly samples. Nina was observed to produce one *her* for *she* error at 1;11, but 3Psg fem subjects were not observed again until 2;2 months. Between 2;2 and 2;5, 140 *her* for *she* errors were observed, and only seven correct *she* subjects (differences between my tally and those of Vainikka and Schütze & Wexler most likely reflect the criteria used for exclusion of non-spontaneous or partially unintelligible utterances). The percentage of error during these four months ranged from 88% to 96%. In reality, these percentages are simply not much different than 100%. A slight difference in the position of the microphone, resulting in the loss of one or two utterances could have made Nina appear to have a gap in her 'productive inventory'. To establish the presence of such gaps, the burden is on the observer to show that the child truly lacks knowledge. It is simply not prudent to assume that the absence of a form in a finite sample means the absence of the form in the mental lexicon, as Wexler *et al.* (1998) have done.

The recent research of Pine *et al.* (2000) shows that children without gaps in their lexical inventory can produce counterexample sentences (e.g. *her* for

she AND agreement marking) at a rate greater than expected by the ATOM model. At present, I do not see evidence to support the notion that children who appear to be categorical in their error are a fundamentally different breed from children like Nina who err less than 100% of the time. If one insists on drawing this distinction, then the judicious research technique for studying these children would be to treat this factor as a between subjects variable and to compare such children to children who are observed to vary. In short, the onus was, and still is, on Wexler *et al.* (1998) to test their hypothesis and demonstrate that these children are REALLY different. Ultimately, one cannot simply dictate a difference by *fiat*.

At an even deeper theoretical level, the picture that Wexler *et al.* (1998) present has a serious problem with regard to the relationship between syntax and morphology. They posit that there are children for whom the objective form of a pronoun is unspecified with regard to case. These children will invariably produce *her* for *she* and *him* for *he* errors even though the sentences containing the errors are marked for agreement. On the other hand, it is also a fact that there are children who do not err with regard to subject case, producing *he* and *she* correctly in all observed utterances, and still these same children vary in the production of agreement marking. In fact, in Rispoli (1999a), children were observed who produced no subject pronoun case errors but who produced agreement marking less than 50% of the time. Such children appeared to have case specified, but were still in the optional infinitive stage, suggesting that Agr was not necessary for case specification. An anonymous reviewer of this response has pointed out to me that the ATOM model might handle such children in the following manner. For such children, Agr is NOT omitted, but it is hidden because of Tns omission. This implies that there are two types of children, one type for whom Tns and Agr are BOTH optional, and another type for whom ONLY Tns is optional. If the power of Agr to trigger correct nominative case assignment is to be preserved, the existence of such children will need to be addressed head on. Does it account for such individual differences or not?

Ultimately, we are asking the following question. How do children learn the case specification of a pronominal word form? It seems to me that the paradigm building approach is a step in the right direction for answering this question. Viewed from the paradigm building perspective, perhaps the most striking aspect of the process is the centrality of the grammatical features of case; NOMINATIVE, OBJECTIVE and GENITIVE. These appear to be the *a priori* anchor points. Around these anchor points, an idiosyncratic group of word forms is eventually brought under control. We call this form of control in an adult a PARADIGM. In the formation of these paradigms we see evidence of a self-organizing system which associates the anchor points to the word forms and phonological micro-structure of the word forms. During this process we see errors that bear a striking resemblance to lexical retrieval errors,

suggesting the presence of a spreading activation system. However, unlike adult lexical retrieval errors, these developmental errors can give rise to persistent and recalcitrant error pockets. As I have said elsewhere (Rispoli, 2000), I find it curious that more researchers are not interested in pronoun case errors. They are a hallmark part of the development of grammar in English, and the data for studying them are all around us. Much is to be learned of general significance from these simple, everyday phenomena.

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