

# Here's a structure that's not so simple: Revisiting the acquisition of relative clauses

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## Abstract

This study revisits the construction-based incremental account of relative clause acquisition presented in Diessel and Tomasello (2005) by reexamining the subset of presentational relative constructions (PRCs) from their data. I demonstrate that trends of incremental development within this construction rely on the assumption that “amalgams” (“That’s my doggy turn around,”) are precursors to standard PRC forms (“That’s my doggy that turns around.”) I argue that amalgams are not related to PRCs in terms of form or function, and that once amalgams are removed from this data set, no patterns of incremental development appear in children’s PRC productions. The results suggest that in order to maintain a constructional view of relative clause acquisition, a wider range of forms and functions must be considered.

**Keywords:** relative clauses, constructions, acquisition

## 1 Introduction

Relative clauses, structures in which an embedded clause serves to modify a nominal element, have an important place in syntactic theories—both those that assume them to be created by extraction rules of a universal nature (see Goodluck and Rochemont (1992) for an overview) and those that see them as patterns having specific communicative functions (Fox and Thompson 1990, Goldberg 2006). Relative clauses are typically described using two parameters: the syntactic role of the (head) nominal element within the matrix clause; and the syntactic role of the relativized nominal element within the relative clause. These syntactic roles are typically coded with S (for SUBJECT) and O (for OBJECT/OBLIQUE), labeled such that the first letter refers to the role of the head nominal and the second refers to the role of the relativized element. Examples of the four types of relative clause utterances (from Sheldon (1974)) that are manipulated in experimental settings with children are:

- (1) a. SS: The dog [that \_\_\_ jumps over the pig] bumps into the lion.

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- b. SO: The lion [that the horse bumps into \_\_\_\_] jumps over the giraffe.
- c. OO: The dog stands on the horse [that the giraffe jumps over \_\_\_\_].
- d. OS: The pig bumps into the horse [that \_\_\_\_ jumps over the giraffe].

The bulk of research in the acquisition of relative clauses has been experimental, often using “act-out tasks,” in which the child is asked to imitate a situation described by a relative clause utterance similar to (1a–1d) (Correa 1995, Eisenberg 2002, Goodluck and Tavakolian 1982). Other experimental paradigms that have been used include Cross Modal Picture Priming (Love 2007) and elicited production (McKee *et al.* 1998). Many experimental works (Correa 1995, Goodluck and Tavakolian 1982, McDaniel *et al.* 1998, McKee *et al.* 1998) assume that relative clauses serve a restrictive function, and that such relative clause utterances as (1a–1d) used as stimuli are adequate to represent a child’s knowledge of relative clause structures. Thus, only if a child indicates that she understands (or can produce) such sentences as, “The lion kisses the duck that hits the pig,” (Goodluck and Tavakolian 1982) is she then said to have acquired relative clauses.

At the same time, experimental research may be missing out on a vast area of children’s knowledge that is simply not displayed in a lab environment. In experimental procedures, children often face extra task demands that may interfere with comprehension or production (Correa 1995, Hamburger and Crain 1982, Kidd and Bavin 2002). Further, outside of a laboratory setting, children produce a wide variety of utterances that are not easily elicited. Thus, to complement experimental work, observational studies are required. Careful and detailed longitudinal analysis of spontaneously produced relative clauses may reveal information about relative clause acquisition that cannot easily be discerned in an experimental setting. Diessel and Tomasello (2005) provide such an analysis in the first large-scale longitudinal study to address the development of relative clauses in English-speaking children. In their examination of 329 finite relative clause tokens in the speech of four English-speaking children (ages 1;9–5;2) in the CHILDES database (Bloom *et al.* 1974, Brown 1973, MacWhinney 2000, Suppes 1974), they found that the earliest RC forms children used bore little resemblance to those used as stimuli in experimental paradigms. Rather than tokens such as (1a–1d), which contain multiple lexically specified arguments and a variety of verbs, children produced semantically simple relative clause utterances. The earliest RC productions contain highly entrenched elements: a deictic pronominal subject (*here, there, this, that*), the present tense copula *be*, and a relative clause attached to a predicate nominal,<sup>1</sup> as illustrated in (2):

- (2) a. This is the sugar [that \_\_\_\_ goes in here]. (Nina, 3;0)
- b. Here’s a tiger [that \_\_\_\_’s gonna scare him]. (Nina, 3;1)
- c. What’s that [he has \_\_\_\_ around his back]? (Adam, 3;8)

Diessel and Tomasello refer to these formulaic relative clause tokens as “presentational relative constructions” (PRCs). These constructions, which children use to introduce new referents in the discourse and to focus the hearer’s attention to that referent, are assumed to contain a semantically

<sup>1</sup>Diessel and Tomasello (2005:144) define predicate nominal not in terms of referentiality, but as “basically a slot that can be filled by any (pro)noun.”

empty presentational matrix clause and a single proposition asserted in the relative clause. Included in this data set are relative clause utterances in which children produce subject-extracted relative clauses without a relative pronoun, as in (3):

- (3) a. That's my doggy [ \_\_\_ turn around]. (Nina, 1;11)
- b. There's a tape [ \_\_\_ go around right there]. (Peter, 2;0)
- c. And that's the birdie [ \_\_\_ scream]. (Diessel and Tomasello 2000:139)

These utterances are not analyzed as errors, nor as attempts at other structures (for example, "This is my doggy turning around,") but rather as presentational amalgam constructions, following Lambrecht's analysis of the form in certain adult dialects (Lambrecht 1988). These amalgams are considered to be "not fully bi-clausal" precursors to the more standard bi-clausal forms in (2). Thus, before children ever produce the types of relative clauses often used as experimental stimuli, they produce semantically and structurally simple relative clause constructions. Based on these data, Diessel and Tomasello offer a construction-based account of relative clause acquisition. They claim that children acquire relative clauses by beginning with such simple forms as illustrated in (2)–(3), gradually acquiring more complex relative clause types in a piece-meal fashion by relating newer complex constructions to those previously learned.

Diessel and Tomasello's seminal work has shed light on the types of structures that are starting points in relative clause acquisition, as well as factors that children appear to be sensitive to during relative clause development. But many questions remain unanswered. For instance, in order to explain how children acquire constructions by relating new forms to those previously learned, we must first carefully map out how exactly those constructions are related to each other. The incremental development of relative clauses described by Diessel and Tomasello relies on the assumption that amalgams are truly precursors to standard PRC forms. But what is the evidence for this assumption? In the current study, I revisit this issue by analyzing a subset of the data that Diessel and Tomasello have studied. As I will argue, this reanalysis calls into question the claim that standard PRCs are related to previously acquired amalgams in terms of either form or function. In fact, as I will argue, once amalgams are removed from the data set, there is no evidence of incremental development of the PRC; children appear to be using a variety of relative clause forms productively within the PRC from the beginning of the acquisition process.

I argue that while these results do not support the developmental trajectory proposed by Diessel and Tomasello, they do not disprove the constructional account of relative clause acquisition. Instead, my findings show that the incremental development of the network of relative clause constructions is much more complex than the initial corpus study suggests. In order to carefully map out the path of relative clause acquisition, we must consider a wider range of relative clause forms as well as their functions.

In the remaining sections of this paper, I will discuss the developmental trends examined for the larger data set of children's relative clauses in the Diessel and Tomasello study (Section 2). Then, in Sections 3 and 4 I will present my re-examination of these trends within children's earliest relative clause productions, the PRC. These trends were examined for both the standard form of the PRC, exemplified in (2), as well as the presentational amalgams (3) that are assumed to be precursors to the standard PRC form. In addition, I consider whether the contexts in which PRCs are produced provide evidence for the presentational function being served by the form. Finally, I discuss whether or not

this fine-grained analysis provides evidence for an incremental development of a network of relative clauses during the acquisition process. I further suggest additional data that must be considered to describe the emergence of such a network. This study adds a careful and rigorous examination of data with theoretical implications for a constructional approach to relative clause acquisition.

## 2 Incremental development in relative clauses: Diessel and Tomasello (2000)

The incremental development account of relative clause acquisition fits into a larger picture of a constructional approach to language acquisition espoused by Diessel and Tomasello, treating constructions as form-function pairings whose properties cannot be derived from their components, along the lines of Goldberg (1995) and Kay and Fillmore (1999). Diessel and Tomasello argue that semantic and pragmatic factors play a significant role in language acquisition as children pair specific forms to specific meanings (Diessel and Tomasello 2000:133). This approach runs counter to theories of relative clause acquisition that adopt the perspective of universal grammar (McKee and McDaniel 2001, McKee *et al.* 1998); (McDaniel *et al.* 1998) which claims that children do not acquire form-function pairings (constructions), but are innately sensitive to purely formal constraints that govern all variations of relative clause structures (Fodor 1992, Goodluck and Rochemont 1992, McKee and McDaniel 2001, McKee *et al.* 1998).

The incremental nature of relative clause acquisition is supported by the distributional trends presented in Diessel and Tomasello's study. But the claim that incremental development occurs through the process of relating new constructions to constructions that learners already know is not. The construction-based incremental model of acquisition depends crucially upon describing constructions (non-compositional form-function pairings) of varying levels of complexity and explaining how they relate to each other, as well as explaining how children make the leap from one relative clause construction to the next. Only by describing exactly how features of relative clause constructions develop in terms of complexity can we begin to concretely map out the network of constructions and provide the construction-based account with legitimate predictive power. The following sections discuss four elements of complexity in the relative clauses discussed in the Diessel and Tomasello (2000) corpus study: number of clauses and number of propositions (Section 2.1), transitivity (Section 2.2) and word order (Section 2.3).

### 2.1 Development in number of clauses and propositions

As mentioned above, one of Diessel and Tomasello's significant contributions to the understanding of the acquisition of relative clauses is the demonstration that children are not immediately productive in their use of relative clause forms, but rather begin with a simple construction: the PRC. The supposed simplicity of this construction is two-fold: the form, which is built on highly entrenched elements, and the function of directing an interlocutor's attention to a new referent, which is assumed to be a natural communicative act for children (Diessel and Tomasello 2000:144). Other aspects of "simplicity" in these relative clauses will be discussed further below as I examine the trends in incremental development described by Diessel and Tomasello, but for now, the claim is that the development of relative clauses in child speech is believed to proceed along a continuum from simple to more complex, from presentational amalgams to regular PRCs and then to more complex relative clauses containing more than one proposition, as illustrated in Figure 1 (Diessel and Tomasello 2000:142).

Thus, we see that the first broad trends in relative clause development involve an increase in the number of propositions (from the mono-propositional PRC to "other relative constructions,") and

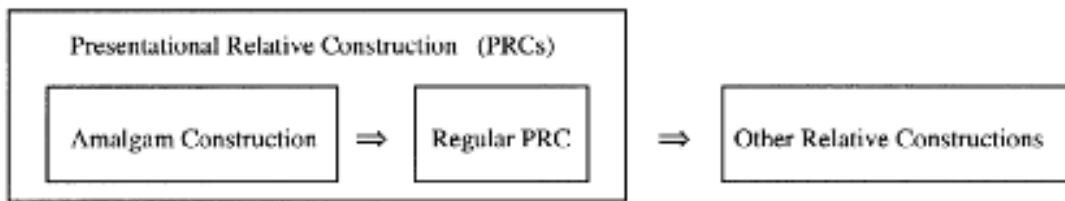


Figure 1: The proposed development of relative clauses in English (Diessel and Tomasello 2000:142)

an increase in the number of clauses (from the not quite bi-clausal amalgam to the fully biclausal regular PRC.) However, there are two problematic assumptions. The first assumption is that the family of PRCs (including both amalgams and standard forms) are indeed mono-propositional and can be paraphrased by single clause structures as shown in (4):

- (4) a. This is the sugar that goes in here. → The sugar goes in here.  
 b. Here's a tiger that's gonna scare him. → The tiger is gonna scare him.  
 c. What's that he has around his back? → What does he have around his back?

The second assumption that I take issue with is that amalgams are indeed precursors to standard PRC forms, and can be linked to standard PRCs both in form and presentational function.

## 2.2 Development in transitivity in the relative clause

In addition to finding that children's relative clause development begins with formulaic constructions and continues to include more complex, multi-propositional relative clause constructions, Diessel and Tomasello found trends across all types of relative clauses with regard to the syntactic role of the relativized element. Using a fine-grained coding system that included four relativized syntactic roles (A-subject of a transitive verb, S-subject of an intransitive verb, O-object, OBL-oblique,) Diessel and Tomasello tracked changes over time in the number of relative clauses containing intransitive and transitive verbs. Examples of these four types of relativized syntactic roles embedded in various matrix clauses include:

- (5) **S-relative:** Is this something [that \_\_\_ turn around]? (Adam, 3;5)  
 (6) **A-relative:** The other thing [that \_\_\_ holds it up]. (Peter, 3;1)  
 (7) **O-relative:** The first thing [we have to do \_\_\_] (is to) put dis in. (Adam, 3;11)  
 (8) **OBL-relative:** You left this toy [I am playing with \_\_\_]. (Peter, 3;1)

When the data were divided into three age groups (0;0-2;11, 3;0-3;11, and 4;0-5;2) and the mean proportions for types of relative clause constructions summed across children were examined, Diessel

and Tomasello found that across age groups, the mean proportion of relative clauses containing a relativized subject of an intransitive verb (i.e., S-relatives) decreased while the mean proportion of relative clauses containing other relativized syntactic roles (i.e., A-, O-, and Obl-relatives) increased (Diessel and Tomasello 2000:141–142). Assuming that relative clauses containing transitive verbs are more complex because they contain additional nominal arguments, Diessel and Tomasello cite these developments as evidence that children begin acquiring relative clauses by starting with simple constructions and then gradually acquiring more complex forms (Diessel and Tomasello 2000, 2005).

The observation that children’s earliest relative clauses are mostly simple intransitive forms while later productions include more complex transitive relative clauses appears to support the incremental account of relative clause development. If transitivity is indeed a feature in relative clause acquisition that children use to relate new constructions to those previously acquired, we would expect to see this trend *within* the emergence of a particular relative clause construction as well. Thus, if children begin relative clause acquisition by producing the simplest forms, the first relative clauses produced should not be of any type of PRC, but should be those of the simplest type: an S-relative PRC. In this study, I examine whether the trends regarding transitivity seen in all types of relative clauses hold for PRCs—including amalgams and standard forms—by investigating the development of S-relative PRCs as compared to A-, O-, and OBL-relative PRCs.

### 2.3 Development in word order in the relative clause

Beyond the trends discovered in the longitudinal corpus study, Diessel and Tomasello (2005) suggest one more developmental trend in relative clause acquisition based on the results of an experimental investigation—one involving word order. Using a repetition task, they found that children were more successful in producing PRCs when the syntactic role of the relativized element was a subject than when it was a post-verbal syntactic role, such as direct object, indirect object, and oblique (S-, A-relatives > O-, Obl-relatives). They explain the second finding not in terms of distance between “filler” (the head nominal) and “gap” (the position of the head nominal within the relative clause) as suggested in O’Grady (1997) but in terms of similarity to simple declarative utterances. Like simple SV(O) utterances in English, S- and A- relatives have a NV(N) word order, as shown in (9):

(9) Here’s something [ \_\_\_ that is gonna gobble up the food]. (Adam, 3;8)  
          N  V  N

Relative clauses of this type are similar to simple utterances in that they contain only a single proposition and, ignoring the deictic pronoun and copula, display word order that is canonical for English. O- and Obl-relatives, however, have an NNV word-order that differs from simple SV(O) utterances, as in (10):

(10) Dis (this) is a new machine [dat (that) Paul likes \_\_\_]. (Adam, 4;3)  
                                  N  N    V

Children’s higher performance on relative clauses with NV(N) word order as compared to their performance on relative clauses with NNV word order mirrored the results of the corpus study. Across age groups, the mean proportion of S- and A-relatives decreased while that of O- and Obl-relatives increased. Assuming that NV(N) forms are indeed “simpler” than NNV forms, this trend corroborates Diessel and Tomasello’s claim that children’s earliest relative clause utterances are similar to simple utterances, and that more varied forms are acquired only later. As discussed before, if relative clause development is truly incremental, then such trends should be apparent not only

across all relative clause types, but within a specific construction type. PRCs then should also exhibit a trend such that the earliest PRC types are S- and A-relatives, while O- and OBL-relatives are acquired only later. This study examines whether or not this is indeed the case.

## 2.4 Simplicity and complexity in relative clause development

Based on the evidence presented, Diessel and Tomasello claim that relative clause acquisition is a bottom-up process that occurs as children build upon previously learned structures, relating new constructions to constructions previously acquired (Diessel 2007, Diessel and Tomasello 2000, 2005). The developmental path resulting from this process is believed to proceed along a continuum from simple to more complex, from simple presentational amalgams to regular PRCs and then to more complex relative clauses containing more than one proposition. In this scenario, complexity is defined in terms of number of clauses, number of propositions, transitivity and word order, such that simpler utterances resemble previously acquired single-proposition declarative utterances and have fewer participants, while more complex utterances have multiple clauses and propositions, more participants and lexical items in a non-canonical order.<sup>2</sup> Figure 2 illustrates the interaction of these four factors with regard to the increase in complexity of relative clause constructions. If children truly acquire relative clause constructions by building up more complex structures as the network of relative clauses develops, Figure 2 should be interpreted not only as a continuum of relative clause types, but as a linear progression of relative clause forms acquired by the child.

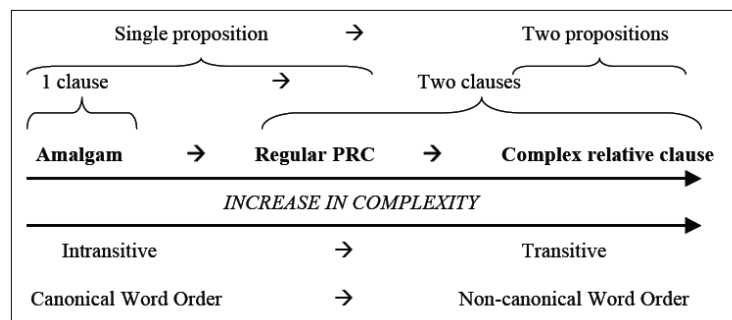


Figure 2: The hypothesized development of relative clauses with respect to complexity. The top two tiers represent development in terms of number of propositions and clauses, while the bottom tiers represent development in terms of transitivity and word order.

Of the four factors being examined, two are clearly predicted in Diessel and Tomasello's account of relative clause development: the number of propositions and the number of clauses. The top half of Figure 2 shows the expected development of relative clauses with respect to these two factors. Beginning with very simple amalgams, children should first develop fully bi-clausal standard presentational forms. After clausal expansion occurs, children then proceed to acquire relative clause constructions that express two propositions. How transitivity and word order interact in the developmental process is less clear in the constructional account. While the overall increase in

<sup>2</sup>Interestingly, the issue of syntactic complexity and function of WH-questions is not considered in the Diessel and Tomasello study, despite the fact that many of Adam's earliest PRC utterances are WH-questions. For the sake of consistency, the PRC tokens in the data set for this study were defined according to the Diessel and Tomasello study such that questions were not considered separately, although 22 of the 94 standard PRCs presented here were in the form of WH-questions.

complexity is represented in the lower half of Figure 2, the intermediate steps are unpredictable. Is it the case that children begin with intransitive amalgams, acquire transitive amalgams, then intransitive standard PRCs, and then transitive PRCs? Or are all early forms intransitive, with transitive relatives only appearing when complex bi-clausal bi-propositional relative clause constructions have been acquired? The same questions may be asked with regard to word order.

In this study, I explored whether the PRC develops in terms of transitivity (intransitive  $\rightarrow$  transitive, as indicated by a decrease in the proportion of S-relatives and an increase of A-, O-, and Obl-relatives) and word order (NVN  $\rightarrow$  NNV, as indicated by a decrease in the proportion of S- and A-relatives, and an increase of O- and Obl-relatives) or whether children productively use transitive relatives and non-canonical NNV forms as soon as they begin to produce copular PRCs. In addition, I explored evidence regarding the mono-propositionality of the PRC by looking at the context in which each of these utterances occurred. Context-based evidence indicating that this form truly has a mono-propositional “presentational” function as defined by Diessel and Tomasello would bolster the constructional account of acquisition. If there is no evidence of a (PRC) form-(presentational) function pairing, then we must reconsider how to view these structures within a constructional framework.

Summarizing, I examine whether the incremental developmental trends seen in the overall set of children’s relative clauses holds for the subset of early PRCs. I further examine whether there is a specific presentational function mapped to the PRC template. Results of this study showing that children produce more complex structural and functional variations of PRCs from the first appearance of the construction present a challenge to Diessel and Tomasello’s constructional approach—however, such results do not disprove it. I consider the possibility that incremental development cannot be demonstrated in the restricted data set of the original Diessel and Tomasello study, and that children’s network of relative clause forms is more complex than previously thought, including a wider variety of related forms with various functions.

### 3 Methodology

To investigate the developmental trends of this construction, I collected 131 PRCs, as defined by the Diessel and Tomasello (2000) study, from the same four children in the CHILDES database (Adam, Sarah, Peter, and Nina) (Bloom *et al.* 1974, Brown 1973, MacWhinney 2000, Suppes 1974).<sup>3</sup> This data set included standard forms as well as the forms that Diessel and Tomasello described as amalgams. Standard forms adhered to the template of a deictic pronominal subject, present tense copula *be* and a head nominal followed by a relative clause with or without a relative pronoun, as in (11).

(11) Dese (these) are sponge (pause) [that that \_\_\_ has paint in em] (pause) huh? (Sarah, 4;9)

Amalgams contained a deictic pronominal subject, present tense copula *be* and a head nominal immediately followed by a verb, as in (12).

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<sup>3</sup>Diessel and Tomasello (2000:136) report 158 “predicate nominal” (PN)-headed relative clauses in their data set. The study describes PN-relatives as relatives that “modify the predicate nominal of a presentational copular clause”. While this description leads the reader to believe that PN-relatives are essentially PRCs, it is unclear whether or not the PN category includes copular matrix clauses with *lexical* as opposed to deictic subjects, as in, “A short is something that you eat,” (Adam, 3;10). Such utterances may account for the difference in numbers between my data set and the Diessel and Tomasello data set. For my part, I have used several search strings in addition to examining each file by hand, and have found no other PRC tokens.



(12) It's the subway [ \_\_\_\_ is not noisy]. (Peter, 2;6)

Utterances were coded for the syntactic role of the relativized element (S-, A-, O-, OBL-relatives). Because all tokens were embedded in the same matrix template, there was no need to code for the syntactic role of the head nominal. In addition, all tokens were coded for one of two types: amalgams and standard PRCs. As in the Diessel and Tomasello study, data was divided into three groups based on age at which the token was produced (0;0-2;11, 3;0-3;11, 4;0-5;2).

In order to investigate the development of PRCs in terms of transitivity, I compared the proportion of S-relatives (intransitive) to A-, O- and Obl-relatives (transitive). To examine the development of PRCs with regard to word order, I compared S- and A-relatives (which display NV(N) order) to O- and Obl-relatives (which have an NNV order.) Because there may be some debate as to whether or not children's amalgams should be interpreted in the same manner as the adult form, and consequently whether or not children's amalgams should be understood as presentational constructions, trends across age groups were analyzed not only for all tokens (amalgams and standard PRCs), but also for standard PRCs alone. Trends across children are presented in percentages of total tokens, rather than mean percentages of tokens produced by each child. In addition to examining the data across all four children, the analysis is also provided for the two individual children who produced the highest number of tokens (Adam, 67 tokens, and Nina, 38 tokens.)

Finally, I have conducted a preliminary examination of the context for each of the PRC tokens produced to determine whether or not there is enough evidence for the PRC serving a single presentational function. Diessel and Tomasello describe two features of this presentational construction, the first being that it is used pragmatically by children to introduce a new referent into the discourse. While there may be many definitions of "new" status in discourse (Gundel *et al.* 1993, Prince 1981, 1992), for the current study I considered only whether the lexical identity of the head nominal was used in prior discourse.<sup>4</sup> The second, a semantic feature, is that the matrix clause is semantically empty while the material in the relative clause is asserted. Because Diessel and Tomasello demonstrate this feature by paraphrasing both clauses of the PRC using a single clause, I examined several tokens to see if such paraphrasing still seemed sensible within the context of the discourse.

## 4 Results

In their corpus study, Diessel and Tomasello (2000) found that when data for all four children was collapsed and trends across age groups examined, several trends became apparent. First, a majority of early relative clauses produced were mono-propositional utterances in which the relative clause was attached to the predicate nominal of a main copular clause (e.g., "This is the sugar that goes in there," Nina, 3;0)—which they refer to as the PRC. The decrease in use of PRC structures over time was coupled with an increase in relative clauses embedded in other matrix clause structures. In addition to the trends concerning number of propositions, Diessel and Tomasello found that the mean proportion of children's S-relatives decreased over time while other types of relative clauses, specifically O-relatives, increased. This signified a decrease in the use of intransitive relative clauses and an increase of transitive relatives. Finally, the results of the 2000 study also supported the claim that children produced relative clauses resembling simple declarative constructions in terms of word order (i.e., S- and A- relatives, with NV(N) order) in higher proportions at earlier ages than those

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<sup>4</sup>Because these files in the CHILDES database contain very little commentary, it is often difficult to determine whether or not a specific referent has been mentioned before, either using the same lexical item or a pronominal element. For this reason, I have chosen to look only for prior mention of the lexical item, without making assumptions about the referent.

with non-canonical (NNV) word order (O- and OBL-relatives). As children increased in age, relative clauses with NV(N) order decreased while the proportion of those with NNV word order increased. Diessel and Tomasello (2000, 2005) argue that these trends demonstrate that, within the set of finite headed relative clauses, children begin the acquisition of relative clauses by first producing simple relative clause structures and gradually acquiring structures with more complexity. Furthermore, these simple structures are mapped to a simple function: to focus the hearer's attention on a newly introduced referent.

While the Diessel and Tomasello studies suggest a path of relative clause development based on longitudinal spontaneous production data rather than single experimental studies, they do not explain the intermediate steps that define the exact trajectory from "simple" to "complex" relative clause constructions. Because the PRC is the only relative clause construction that they have defined in child speech, a logical next step in understanding the network of relative clause constructions would be to investigate the interaction between the PRC and other factors of complexity. This study examined the development of both transitivity (as coded by the mean proportions of S-relatives as compared to other types) and word order (as coded by the mean proportions of S- and A-relatives as compared to other types) within the subset of PRCs. The results of this study show that developmental trends depend crucially on the types of PRC considered. These trends either (1) mirror the "simple to complex" trajectory for all finite headed relative clauses shown in the Diessel and Tomasello studies, or (2) show no trends of development along the lines described, with "complex" PRCs comprising a majority of PRCs in the earliest age group, dependent upon whether or not the form defined as the presentational amalgam is included in the data set.

In the following sections, I will first present results of the investigation of transitivity and word order for the complete set of PRCs as defined by Diessel and Tomasello (including both amalgams and standard PRCs.) Then I will consider reason relating to both function and form as to why the "presentational amalgam" should not be included in this data set, and present the trends for the data set with the amalgams removed (i.e., only standard PRCs). Finally, I will present information regarding the prior use of the head nominal in discourse as a criterion for the presentational function of the PRC. Additional information concerning the semantic features of the PRC will be considered in the discussion section. Results are presented as raw percentages of all tokens produced at a certain age group, first for the data set collapsed across all children, and then for two individual children, Adam and Nina.

#### 4.1 Transitivity and word order in the PRC

##### 4.1.1 Results for all children

When the data for all PRCs (amalgams and standard forms) are collapsed across all children and divided according to the age groups defined by Diessel and Tomasello, the trends for S-, A-, O- and OBL-relatives mirror the trends for all relative clauses in the Diessel and Tomasello (2000) longitudinal study, as can be seen in Figure 3. As is the case for the earliest relative clauses in the Diessel and Tomasello study, a majority of the earliest PRC tokens produced are intransitive (S-relatives). In the first age group (0;2-11), S-relatives account for approximately 75% of children's PRC utterances, while A-relatives account for 10%, and O- and OBL-relatives account for roughly 14%. By the third age group (4;0-5;2), S-relatives have decreased to 18% of all PRC productions while other types have increased to 82%. Counts and proportions are given in Table 1. Thus, as the children grow older, they produce relatively fewer intransitive (S-) relatives and proportionally more transitive (A-, O-, and OBL-) relatives within the set of PRCs.

While transitivity was investigated by comparing the development of S-relatives to all other types, word order in the development of the PRC was investigated by comparing S- and A-relatives, which display NV(N) word order, to O- and OBL-relatives, which have NNV word order. Again, when all forms of the PRC are examined across age groups, the trends align with Diessel and Tomasello’s findings. As can be seen in Table 1, in the first age group, S- and A-relatives together account for 86% of all relative clause tokens produced. By the third age group, the percentage of S- and A-relatives has decreased to 35%, while O- and OBL-relatives increase to approximately 65%. These trends support the claim that when children begin producing PRCs, they use proportionally more forms with canonical NV(N) word order over forms with NNV word order. The data presented here suggest that children do begin acquiring relative clauses not only by producing “simple” PRCs, but by producing the simplest form of the PRC—an intransitive relative clause with canonical NV word order.

Count of Type	Age Group			
Type	1	2	3	Grand Total
A-relatives	3 (10.34%)	12 (22.64%)	8 (16.33%)	23 (17.56%)
O-relatives	2 (6.90%)	17 (32.08%)	29 (59.18%)	48 (36.64%)
Obl-relatives	2 (6.90%)	9 (16.98%)	3 (6.12%)	14 (10.69%)
S-relatives	22 (75.86%)	15 (28.30%)	9 (18.37%)	46 (35.11%)
Grand Total	29 (100.00%)	53 (100.00%)	49 (100.00%)	131 (100.00%)

Table 1: Counts and raw proportions for all PRC types collapsed across children for age groups 1 (0-2;11), 2 (3;0-3;11) and 3 (4;0-5;2).

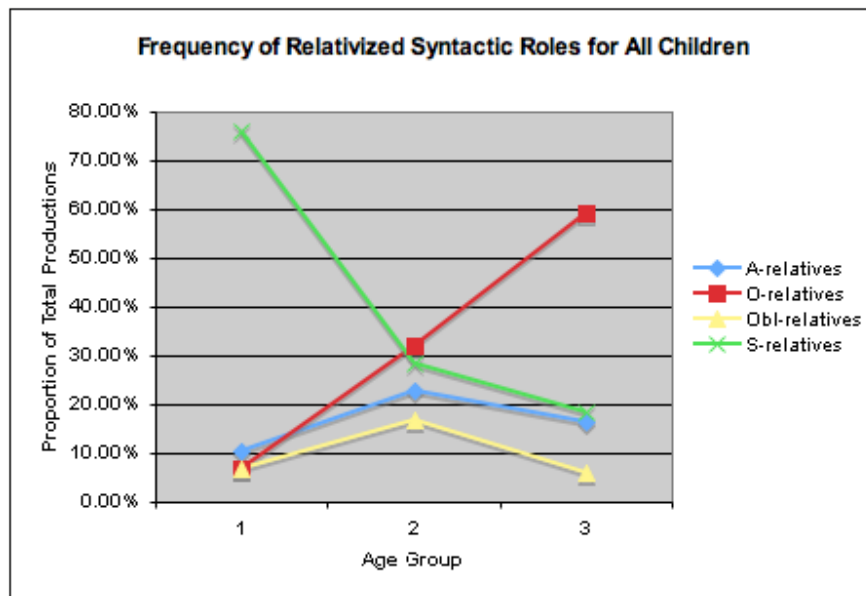


Figure 3: Trends in A-, O-, OBL-, and S-relatives within PRCs (including both amalgam and standard PRC forms) for Adam, Sarah, Nina, and Peter produced between ages 0;0-2;11 (Age Group 1), 3;0-3;11 (Age Group 2) and 4;0-5;2 (Age Group 3).

### 4.1.2 For individual children

To see whether or not the trends in the data collapsed across all children were seen in individual children, I examined the data for the two children with the highest number of tokens: Adam (67 PRCs) and Nina (38 PRCs). To get a more fine-grained look at the development, I divided the data for each child into groups of relative clauses produced every three months. Table 2 shows the divisions for each child.

Adam's Age	Group	Nina's Age
3;0-3;2	1	1;10-2;0
3;3-3;5	2	2;1-2;3
3;6-3;8	3	2;4-2;6
3;9-3;11	4	2;7-2;9
4;0-4;2	5	2;10-3;0
4;3-4;5	6	3;1-3;3
4;6-4;8	7	
4;9-4;11	8	
5;0-5;2	9	

Table 2: Age group divisions for Adam and Nina's individual data

The age span for all of the Adam files is 2;3-4;10, but his earliest copular PRC appears at 3;0. If we compare Adam's developmental trends with the overall picture for all four children, we should expect that the earliest forms produced by Adam in this data set show the pattern of Age Group 2—they should be roughly halfway through the transition from intransitive to transitive and from NVN to NNV type relatives. Figures 4 and 5 suggest that this is indeed the case.

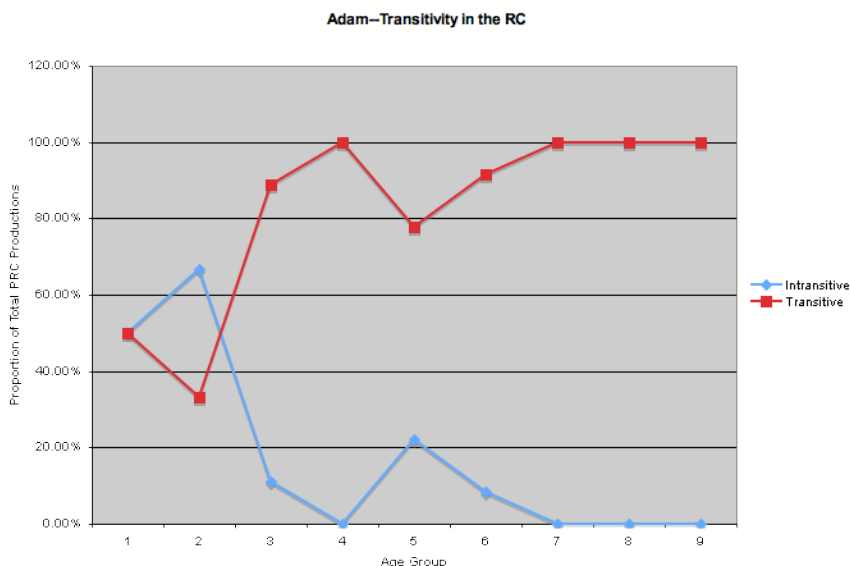


Figure 4: Trends in the transitivity of the relative clause for Adam's PRCs.

Nina's age for the collected files ranges from 1;11-3;11, leading us to expect simple intransitive and NVN utterances to dominate the set of copular PRCs produced in the earliest data available.

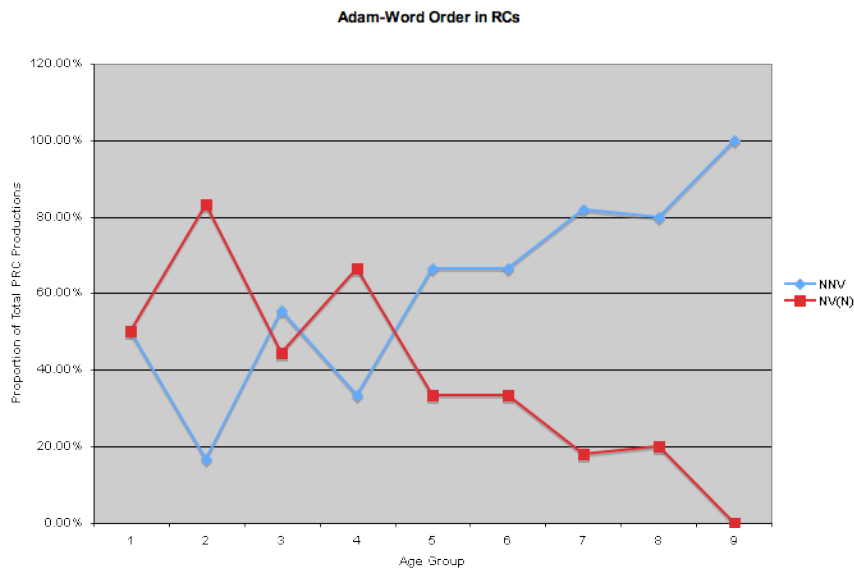


Figure 5: Trends in the word order of the relative clause for Adam’s PRCs.

Figures 6 and 7 show that this is indeed the case. With regards to both transitivity and word order, Nina’s copular PRCs show the same developmental trends seen across all four children, in accord with Diessel and Tomasello’s work.

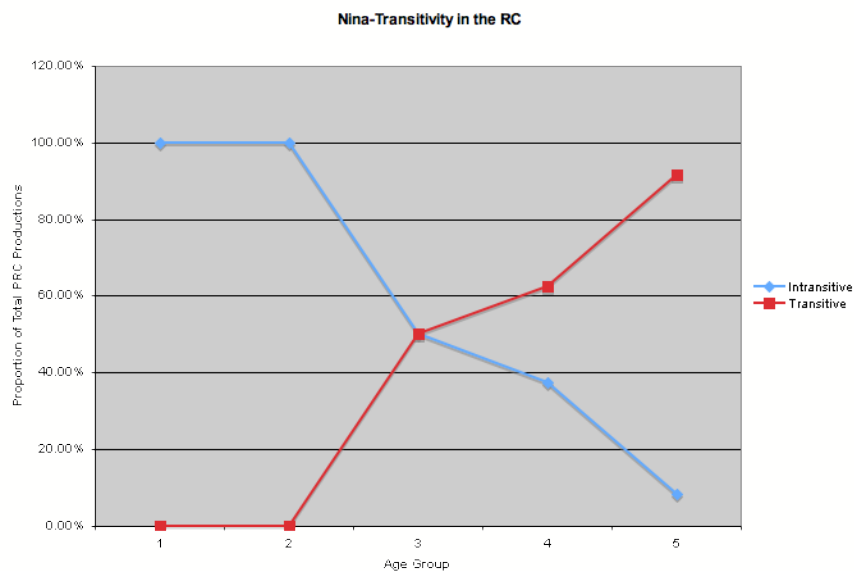


Figure 6: Trends in the transitivity of the relative clause for Nina’s copular PRCs.

To briefly summarize, an examination of the PRC (amalgams and standard forms) subset of the relative clauses produced by Adam, Nina, Peter, and Sarah reveal developmental trends similar to those for the entire set of relative clauses as examined by Diessel and Tomasello. Children apparently begin producing the presentational relative construction by first acquiring the most simple



Figure 7: Trends in the word order of the relative clause for Nina's copular PRCs.

(intransitive, NV(N)) form of the PRC, and then gradually acquire more complex (transitive, NNV) forms.

Yet it should be noted that the data set under investigation actually includes two types of PRCs: standard forms, which are also seen in the input (Diessel and Tomasello 2000), and non-standard forms (amalgams) which are not only not present in the input, but are not retained by the children at later ages. Diessel and Tomasello justify including these forms in the data set by assuming that Lambrecht's (1988) analysis of adult forms can automatically be applied to the forms produced by children (Diessel and Tomasello 2000:140). While it may be the case that occurrences of the amalgam construction are widely attested in certain nonstandard varieties of adult speech, the absence of amalgams in the adult input for these children suggests that the child amalgams may not have the same analysis. For this reason, I conducted a second examination of transitivity and word order in only the standard child PRC forms, without the amalgams.

What is worth noting is that once the amalgams are removed from the data set, the trends in development change radically, as can be seen in Figure 8. Apart from the amalgams, children produce very few S-relative PRC tokens (see Table 3). Figure 8 shows that without amalgams, transitive forms (A-, O-, OBL-relatives) and NNV forms (O-, OBL-relatives) are used from the very beginning of the use of copular PRCs. In fact, S-relatives, the simplest type of copular PRC as well as the prototypically simplest form of all relative clause structures (Diessel and Tomasello 2000:138–139), do not appear until the second age group. When amalgams are removed from the data set, and only standard PRC forms considered, children appear to be using complex transitive, NNV forms (O- and OBL-relatives) from the onset of relative clause production.

This same phenomenon is seen in the individual children. Adam does not produce any PRCs in age group 1. His first PRC ("What is that you take out?") is an O-relative at 3;2. His first S-relative PRC ("Is this something that turn around?") is produced three months later, at 3;5. During the second age group (3;0-3;11, our earliest data for Adam), 83% of his PRCs are transitive and a full 50% are non-canonical NNV word order, with the percentages only increasing as he grows older. Nina's first PRC is also an O-relative ("That was Erin's nightgown I wear") at 2;5, while her first S-relative PRC is not

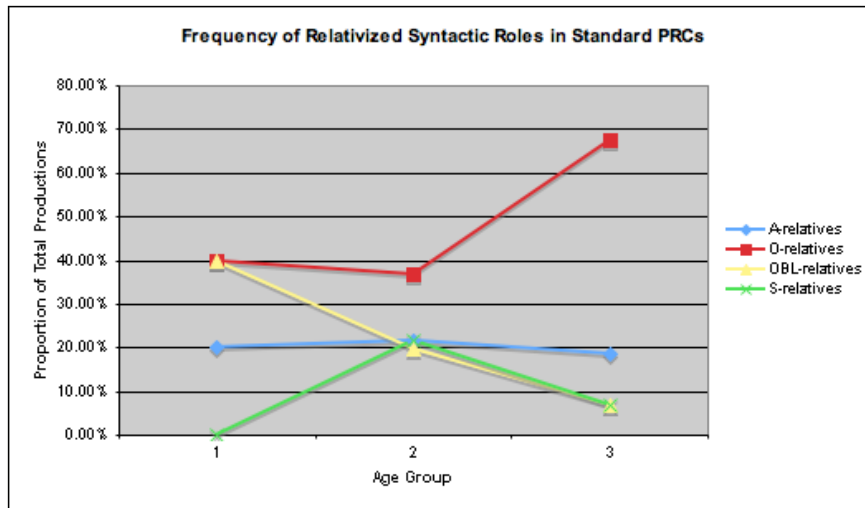


Figure 8: PRC development for Adam, Nina, Peter, and Sarah, without amalgams.

Count of Type	Type				Grand Total
	OA	OO	OObl	OS	
Age Group					
1	1 (20.00%)	2 (40.00%)	2 (40.00%)	0 (0.00%)	5 (100.00%)
2	10 (21.74%)	17 (36.96%)	9 (19.57%)	10 (21.74%)	46 (100.00%)
3	8 (18.60%)	29 (67.44%)	3 (6.98%)	3 (6.98%)	43 (100.00%)
Grand Total	19 (20.21%)	48 (51.06%)	14 (14.89%)	13 (13.83%)	94 (100.00%)

Table 3: Counts and raw proportions for all standard (non-amalgam) PRC types collapsed across children for age groups 1 (0-2;11), 2 (3;0-3;11) and 3 (4;0-5;2).

produced until 3;0 (“This is the sugar that goes in here.”) She actually produces no S-relative PRCs in the first age group (0-2;11), with all of her PRC productions being transitive, and 75% displaying noncanonical NNV word order. With amalgams being removed from the data set, the number of utterances produced by Sarah and Peter drops to ten and two respectively, hardly worth considering on an individual level.

#### 4.2 Prior mention of head nominals

In addition to investigating the development of the form of the PRC, I examined the contexts in which the PRC (both standard and amalgam) forms appeared. When each token was annotated for whether or not the head nominal had been previously mentioned in discourse, 50% of the PRC tokens produced contained head nominals that had a prior mention, 30% contained the first mention of the head nominal (no prior mentions), and 20% were ambiguous as to whether or not the head nominal had a referent that had been mentioned in prior discourse. Proportions are broken down according to age group in Table 4.

Count of Previous Mention	Previous Mention			
Age Group	no	?	yes	Grand Total
1	11.11%	11.11%	77.78%	100.00%
2	39.62%	13.21%	47.17%	100.00%
3	30.61%	30.61%	38.78%	100.00%
Grand Total	30.23%	19.38%	50.39%	100.00%

Table 4: Raw proportions for prior mention of the head nominal lexical item in all PRC collapsed across children for age groups 1 (0-2;11), 2 (3;0-3;11) and 3 (4;0-5;2)

## 5 Discussion

The results of this study suggest two different developmental paths of a specific relative clause construction which Diessel and Tomasello refer to as the presentational relative construction (PRC). The first path, based on an analysis of amalgams and standard PRC forms together, show children first producing intransitive NV forms—S-relative PRCs (“This is the sugar that goes in here,” Nina 3;0.) As children grow older, they begin to produce more transitive relative clause forms (A-, O- and OBL-relatives) as well as those with non-canonical NNV word order (O- and OBL-relatives). These trends support the claim that children acquire relative clauses by beginning with the simplest forms and gradually build up a network of constructions by relating new constructions to old ones.

A second developmental path paints a very different picture, suggesting that children produce more “complex” relative clause forms from the onset of relative clause acquisition. When amalgams are removed from the data set, children are shown to immediately produce transitive NNV as the majority of their standard PRC forms. Rather than being limited to starting out simple and gradually acquiring the more complex varieties of the PRC, children show immediate productivity of A-, O-, and OBL-relative PRCs, with very few uses of the simple S-relative PRC. This suggests that children are not constrained by the simple/complex features described in the Diessel and Tomasello study, but may rely on some other strategy in relative clause acquisition. It is important to note that these two very different analyses are based on two separate data sets: one that includes amalgams as PRCs, and one that does not. Thus, we must consider the evidence for treating amalgams as presentational relative clause constructions.

### 5.1 The problem with including syntactic blends (“amalgams”)

In the Diessel and Tomasello study, amalgams are treated as precursors to the regular (standard) PRC form, as illustrated previously in Figure 1. Amalgams differ from standard S-relative PRCs in that they do not contain two full clauses, seemingly due to the lack of a relative pronoun.

While Diessel and Tomasello describe amalgams as “syntactically dense” structures that are not fully bi-clausal, it is unclear whether or not amalgams may also be seen as analogous to zero (O-) relative clauses, which are considered to be bi-clausal structures (Diessel and Tomasello 2000, 2005). If amalgams are merely zero S- or A-relatives, then the appearance of not being truly biclausal only stems from the lack of a relative pronoun in a subject gap relative clause structure, as seen in (13a) and (13b).

- (13) a. (*amalgam*) Here’s a doggy \_\_\_ turns around. (Nina, 1;11)



- b. (*regular PRC form*) Here's a doggy that \_\_\_\_ turns around.

If the zero RP subject gap is a precursor for a regular S-relative PRC, then it seems reasonable to assume that zero object-gap relative clauses are precursors to regular O- and OBL-relative PRCs. And yet, an object gap relative clause structure not marked by a relative pronoun (a zero relative clause), like (14b), is not treated as syntactically denser than one overtly marked with a relative pronoun, as in (14a). It is considered to be a fully developed adult-like relative clause structure.

- (14) a. (*zero relative clause*) That's the finger I hurt \_\_\_\_\_. (Adam, 4;0)

- b. (*regular PRC form*) That's the finger that I hurt \_\_\_\_\_.

If the zero S-/A-relative analysis is chosen, then the place of zero O-relatives in the network of early relative clause structures also needs to be described separately as a precursor to standard O-relative PRCs. In addition, it would be necessary to explain why zero S-/A-relative—amalgams—are not maintained in most adult grammars while zero O-relatives are considered grammatical and are common in adult speech.

Diessel and Tomasello, following Lambrecht, contest that amalgams are present in some adult dialects, yet they note that amalgam constructions are rarely seen in the parental input for the children in this data set. In this case, the children appear not to be acquiring a construction but rather to be creating amalgams “in an attempt to match the syntactic structure of presentational relatives with their meaning: since presentational relatives express a single proposition, children tend to merge the two clauses of this construction into a single syntactic unit” (Diessel and Tomasello 2000). We then need to explain the unpacking of amalgams into the fully bi-clausal standard PRC forms. How, exactly, does this clausal expansion occur? It is somewhat difficult to imagine how a copular O-relative PRC (with NNV word order) arises from the early amalgams (with NVN word order) separately from the copular S-relative PRC through the process of clausal expansion—there would need to be two separate steps; one for the development of the copular S-relative PRC, keeping the same NVN word order, and a more complex one for the copular O-relative PRC that results in a new, NNV word order while also possibly adding an overt relative pronoun and increasing the transitivity.

Some insight into the clausal expansion process may be provided by the work of Lieven *et al.* (2003), in which a single child's language development was studied using a very dense corpus and a morpheme-matching methodology to relate novel utterances to previous ones. The results of this study showed that the child's novel productions could be related to previous utterances via such single-step operations as adding, deleting or substituting a word, or rearranging or inserting words. Within this framework, standard PRC forms may be related to amalgams via such operations. But because there is more than one type of PRC, as shown in Figure 9, there cannot be one single step that links amalgams to standard PRCs; given the variety of PRC forms, there must be several operations involved in children's acquisition of this relative construction from the amalgam.

For the amalgam to expand to a regular S-relative PRC, only one step is required. The child simply needs to add a relative pronoun. To get to the A-relative PRC, two steps are necessary—the addition of the relative pronoun as well as the addition of a second nominal element reflecting the transitivity of the verb. The O-relative PRC, being more complex, requires not only the addition of a relative pronoun and a second nominal element, but a rearranging of canonical word order, from NV(N) to NNV. Importantly, these single-step operations are merely ways to describe how new utterances relate to previously acquired forms; it does not explain how the child gains a new understanding

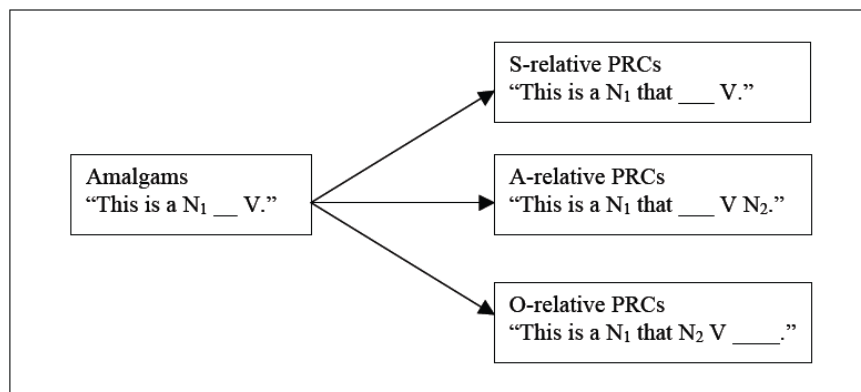


Figure 9: Development of types of standard copular PRCs from amalgams.

of the utterances in terms of propositions and clausal boundaries, constituency, or thematic roles of participants and word order.

While single step operations may be useful in describing similarities between forms, as illustrated above, the problem in these data is that such single-step transitions are not apparent. The inclusion of amalgams in the data results in a confound involving the transition to regular PRC and increase in transitivity. As Diessel and Tomasello noted, there is a sharp decrease in the percentage of S-relatives and increase in O-relatives as age increases across all relative clause structures; this study shows that this is also the case with all presentational constructions (amalgams and regular PRCs). But when amalgams are investigated separately from regular PRCs, it becomes clear that a majority of amalgams (78.38%) are S-relative forms—they contain intransitive relatives. Only 4 of 37 amalgams are A-relatives. Conversely, a majority of S-relatives (72.25%) across all presentational constructions are amalgams. It seems to be very difficult to separate intransitive relatives from amalgams and transitive relatives from regular PRC forms; there is a confound between the development of the type of copular PRC and the transitivity of the relative clause. As a result, there is no single-step incremental development from amalgam to S-relative PRC; these data suggest that after a period of producing S-relative amalgams, children suddenly burst into the production of more complex, transitive PRC forms.

## 5.2 Functional unity among PRC constructions

In terms of form, there is little evidence in these data that amalgams are precursors to standard PRC forms. However, it is possible that there are incremental steps from one form to the other, but that the corpora are simply not dense enough to reveal these developments. How then could we know if amalgams should be treated as part of the family of presentational relative constructions? By looking at the function. The constructional approach to relative clause acquisition, as described by Diessel and Tomasello, claims that semantics and pragmatics are as important to the acquisition process as structural features are, and that relative clauses are specific forms paired with specific meanings (Diessel and Tomasello 2000:133). The function of the presentational clause is supposedly to focus the hearer's attention on a new referent being introduced into the discourse (Diessel and Tomasello 2000:144).<sup>5</sup> If this is indeed the case, we should find that all PRCs, amalgams and standard forms

<sup>5</sup>Diessel (2008) appears to revise this claim, describing PRCs as grammatical constructions that focus the hearer's attention on the referent, regardless of whether or not the referent is newly introduced into the discourse. To determine if the

alike, have new referents as head nominals. Yet as the results suggest, many of the head nominals are at least somewhat activated by prior mention of the lexical item (which may even allow the PRC to be interpreted as serving a restrictive function) and at the very least are not “brand-new” (Prince, 1981) since they refer to objects in the surrounding environment.

Another supposed semantic feature of the PRC is mono-propositionality. The main clause of the PRC is described as semantically empty, while the relative clause contains asserted material. This is illustrated by showing that the two clauses can be reduced to a single-clause declarative utterance, as in examples (4a), (4b), and (4c), repeated here for convenience:

- (15) a. This is the sugar that goes in here. → The sugar goes in here.  
 b. Here’s a tiger that’s gonna scare him. → The tiger is gonna scare him.  
 c. What’s that he has around his back? → What does he have around his back?

Yet this test does not seem to hold for all tokens. Is it truly the case that paraphrases (in parentheses,) of tokens such as (21-23) have the same meaning as the original utterance?

- (16) *Nina (3;2) is looking at a picture book with her mother, after talking about the penguins that they saw at the zoo. (2;10)*

Nina: And there’s the penguins that we saw. (?? We saw the penguins.)

- (17) *Nina (3;2) and her mother are playing.*

Nina’s mother: I don’t understand what this operator is that you keep talking about.

Nina: It’s a operator that we dance to. (?? We dance to the operator.)

- (18) *Adam (4;0) responds to his mother’s instructions on how to use a yo-yo.*

Adam’s mother: Put it on your middle finger.

Adam: No (pause) that’s the finger I hurt . (?? I hurt the finger.)

In (21), Nina is not merely asserting that she and her mother saw penguins; she is asserting that the penguins in the picture book are the same as those she and her mother saw at the zoo. In (22),

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function that the child attributes to this construction is indeed that of focusing an interlocutor’s attention on a particular item, however, requires a rigorous analysis of the discourse context and prosodic structure of these constructions. In addition, one would need to explain how these constructions focus the interlocutor’s attention on the referent in a manner that their mono-propositional declarative utterances do not. According to the Diessel and Tomasello analysis, the utterance “Here’s a tiger that’s gonna scare him,” (Nina, 3;1) functions to focus the hearer’s attention on “a tiger” while “A tiger’s gonna scare him,” would not. Likewise, in the following exchange, we would have to assume that the child does not intend the interlocutor to focus on “cow” in the mono-propositional declarative utterance:

- (1) *Nina’s mother: “Look at the baby. Where’s he sitting?”  
 Nina: In the grass. Oh. Cow’s gonna get him.” (Nina, 3;0)*

The analysis to support such assumptions, however, has yet to be presented.

Nina is giving a predication, defining “operator” for her mother, not merely asserting that she and her friends go dancing. Adam’s utterance (23) is in all likelihood a typical restrictive relative clause, where the deictic subject that refers to one of his fingers which is identified as the injured one. In addition to tokens such as these, the set of PRCs is full of other tokens which are difficult to analyze as bi-clausal mono-propositional phrases. Such tokens include questions (“Is that all that was in there?” Nina 3;1; “What is that he has around his back?” Adam, 3;8) which function as requesting information rather than introducing referents, as well as relative clause tokens with pronominal heads (“Here’s the one that’s broken,” Sarah 4;2; “This is a something that gets some dirt in it,” Adam 3;5).

Although a complete functional analysis of any construction requires more information, such as prosody, gesture, and information of the physical context of the utterance than is provided in these transcripts, even a preliminary investigation of PRCs in discourse shows that there is no straightforward simple analysis of their semantic features. As even the standard PRCs do not appear to be a singular form mapped to a single function, it is difficult to see how amalgams should be linked functionally to standard PRC forms. With no evidence for amalgams and PRCs serving a unitary function, and no logical explanation of how standard PRC forms are structurally related to the previously acquired amalgam, there is little justification for including amalgams in this set of data. Once the amalgams are removed, there are very few S-relative tokens remaining in the data set, and therefore no evidence of incremental development for this construction.

How, then, can amalgams and PRC forms be accounted for? I do not wish to disregard amalgams as errors and dismiss the constructional approach entirely. Rather, I suggest examining incremental development across a wider range of relative clause forms. By considering a less restrictive data set and relating amalgams and PRCs to other types of early relative clauses, I suggest that relative clause acquisition may be a more complex process than that presented in the Diessel and Tomasello study.

### 5.3 Expanding the network of relative clause constructions

These corpus studies certainly provide valuable qualitative information about the types of relative clause structures that children produce at early ages, but as they stand, they do not give enough solid evidence for the developmental steps that children go through when acquiring these structures to show how various relative clause forms constitute a network of constructions. But does this necessarily prove that the constructional approach is false? Not at all. As I have shown, the results of these analyses depend crucially on the data sets that have been used. In both the Diessel and Tomasello (2000) corpus study and the current study, the data have been limited to finite headed relative clauses, with no consideration for other types of nominal modification, including infinitival relatives (“Here’s some milk to drink,” Nina 2;10), headless (WH-) relatives (“That’s what cowboys put on him,” Adam 3;9) and other early utterances that show structural and semantic features similar to early standard relative clause forms produced by children. Once such forms are considered, potential evidence for a construction-based explanation for the rapid and early acquisition of more complex O- and OBL-relatives over and above simpler S- and A-relatives, as well as the role of amalgams in relative clause development emerges, as will be illustrated with data from Nina’s files.

Nina’s first standard O-relative PRC (19) occurs at 2;5. Prior to that, we see no other PRCs in her transcripts. We do, however, see that sequential utterances, taken together, are similar in form to O-relative PRCs, as seen in (20) and (21).

(19) That was Erin’s nightgown I wear. (2;10)

(20) That's my chicken. Tiger eat my chicken (pause) tiger. (1;11)

(21) Here's the lamp. Fix it (pause) lamp fix it. (2;1)

Like the O-relative PRC, the sequential utterances begin with a deictic pronominal subject, a present tense copula, and a nominal element, which is then modified by a following clause.

Prior to Nina's first S-relative PRC productions at 3;0 (22 and 23), we see simple declarative utterances, again with deictic pronominal subjects and present tense copula (24 and 25). Like the S-relatives, these declaratives contain spatial predicates. Thus, these declaratives resemble the early S-relative PRCs in formal as well as semantic features.

(22) This is the sugar that goes in there. (3;0)

(23) Is that all that was in there? (3;0)

(24) There's a stove there. (2;1)

(25) That's homes there. (2;2) (2;0)

Nina's first A-relative PRC (26) is produced at 2;11. The verb form in the A-relative PRC is similar to the forms seen in participial relatives (28 and 29). An early S-relative (27) shows similar features.

(26) Here's a puzzle that missing some pieces. (2;11)

(27) This is the one that's walking on his head. (3;0)

(28) That's my fish drinking a water. (1;11)

(29) That's mommy holding the baby. (2;0)

In terms of the Lieven *et al.* (2003) account of development, the standard PRC is separated from the participial relatives by one operation. These participial relatives are standard forms that are also seen in adult speech, which begs the question, why would we need to posit amalgams (non-standard forms that are not carried into adult speech and which are not present in the child's input) as precursors to standard PRC forms when other possible precursors exist? Instead, we should consider the possibility that early amalgams (30 and 31), which in Nina's speech emerge at the same time as participial relatives, may be related to both participial and finite relatives, and possibly other relative clause forms as well.

(30) That's doggy turn around. (1;11)

(31) This is my doggy cries. (2;0)

It may be the case that amalgams serve as a sort of item-based stepping stone for the child, an attempt at post nominal modification that the child produces while she is in the midst of acquiring the variety of abstract form-function pairings that constitute the full network of relative clause constructions. To more completely describe the role of amalgams in the acquisition of relative clauses, we need to examine what other types of relative clauses the child is producing alongside amalgams, including the specific features of those relative clause types, such as verbal inflections and nominal forms within the relative clause. In addition, we should consider the child's relative clause network at the time that she ceases to use amalgams—what forms have become fully abstract and productive, what forms still seem to be based on entrenched lexical items?

A constructional account of relative clause acquisition must describe how early child relative clauses are linked not only in form, but also in function. This is not an easy task, particularly when working with a data set that has been defined a priori based on a subset of adult relative clause forms. A more useful approach is that in which the structure to be examined is broadly defined in functional terms, and all tokens serving that function are included in the analysis. Once the data set has been more broadly defined, we have the freedom to consider various relationships between forms (as in the above examples) as well as more specific functions for the varieties of relative clause types. From there, we may begin to flesh out a detailed model of how children may actually acquire relative clauses in a piece-meal bottom-up fashion.

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