

Negative DPs and Elliptical Negation in Child English

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In this article, I present a new syntactic analysis of the negative marker *no* in child English. The main claim of the article is that the majority of *no* constructions in early child English are determiner phrases (DPs) in which *no* appears as a determiner. This claim is supported on the basis of distributional and morphosyntactic tests, a discourse analysis of children's elliptical negatives, and a comparison of *no* constructions in child and adult English. These results suggest that the Sentence Operator analysis, the standard analysis of child English *no* for more than 30 years, is untenable as a general analysis of child English *no*. The results also suggest that although children make many mistakes using *no*, they represent *no* as a determiner in abstract syntax and control the Phonetic Form principles that regulate the use of discourse ellipsis with *no* DPs at a very early age.

1. NO CONSTRUCTIONS IN CHILD ENGLISH

Negation is one of the earliest functions to emerge in child languages. The word *no* in English, and corresponding words like *nee* in Dutch and *nein* in German, are normally the first negative expressions to appear in children's speech. In child English, *no* occurs in a variety of constructions, including those in (1).

- | | | |
|----------------------|---------------------|---------------|
| (1) no good | no crackers for you | no yet |
| what you doing no | no sunny outside | no over |
| No Leila have a turn | no ready yet | there no more |
| no flour in there | no to bathroom? | I no know |

Henceforth, I refer to syntactic constructions including *no* as *no constructions*.

There has been much research on the formal syntax of child English negation (Bellugi (1967), Bloom (1970), Bowerman (1973), Braine (1963), Brown,

Cazden, and Bellugi (1969), Deprez and Pierce (1993), Harris and Wexler (1996), Klima and Bellugi (1966), McNeill (1970), Pierce (1992), Radford (1990)). Throughout much of this research, *no* constructions have been analyzed as (elliptical) sentential negations in which *no* occurs along with *not* and *don't* as an early sentence negation marker.¹ For example, Klima and Bellugi (1966) analyzed children's earliest *no* constructions (Period 1: mean length of utterance [MLU] < 2.0) as the combination of the negative morpheme *no* with a sentential "nucleus," which, in some cases, consisted only of a noun or a verb. In the following Period 2 (MLU = 2.8–3.0), *no*, *not*, and *don't* all occur under Neg, an optional category generated in auxiliary position in combination with a (reduced) sentence. In more recent research, child English *no* and *not* are assumed to be generated in free alternation in VP adjunct position in negative small clauses (Radford (1990)) or in NegP (Deprez and Pierce (1993), Harris and Wexler (1996)).

There has also been much research on the semantic functions of negation in child English and other child languages (Bloom (1970), Bloom and Lahey (1978), Choi (1988), De Villiers and De Villiers (1979), Greenfield and Smith (1976), Ito (1981), Keller-Cohen, Chalmer, and Remler (1979), Pea (1980), Volterra and Antinucci (1979)). Most of these studies have adopted, and in some cases extended, Bloom's (1970) influential taxonomy of negative events (i.e., nonexistence, rejection, denial) for describing the meanings of children's early negatives. These early functional analyses share with the syntactic analyses the assumption that children's *no* constructions are sentential negatives in which *no* occurs as an auxiliary sentence negation operator. For example, Bloom and Lahey (1978, 189–191) used the sentence negation *I don't want X* to paraphrase children's (elliptical) rejections (e.g., *No dirty soap* < *I don't want any dirty soap*), *That's not an X* to paraphrase their truth-functional denials (e.g., *No truck* < *That is not a truck*), and negative sentences like *Don't X* to paraphrase their negative imperatives (*No flush* < *Don't flush*). These paraphrases have become not only standard interpretations of children's negatives but also the basis for inferring which predicates may be missing from a child's nonsentential negatives (e.g., Bloom (1970)).

Henceforth, I refer to the syntactic or functional analysis of *no* as an auxiliary sentence negation operator akin to *not* and *don't* as the *Sentence Operator* analysis.

The Sentence Operator analysis has been the standard analysis of child English *no* for more than 30 years. However, it is unlikely to give the correct picture of how children use *no* or what children know about the grammar of *no*. One impor-

¹Two notable exceptions are Braine (1963) and Bowerman (1973). Braine analyzed *no* in two-word negatives like *no bed*, *no wet*, and *no fix* as combination of "pivot" operators and open class words. Bowerman argued against the sentential operator analysis of *no* on the grounds that many of them occurred in nonsentential utterances, for example, *no* + VP, *no* + CN. The findings presented in this article can be seen as further support for Bowerman's view.

tant and widespread assumption guiding current language acquisition theory is the *Continuity Assumption* (e.g., Pinker (1984)), which states that the grammatical symbols, rules, and principles used by children are the same as those used by adults. One fundamental problem with the Sentence Operator analysis is that it is inconsistent with this assumption. There is no grammatical rule or principle in English that licenses *no* as a negative auxiliary, VP adjunct, or head/specifier of NegP, as assumed under the Sentence Operator analysis. Nor is there a grammatical rule or principle in English that licenses *no* as a suppletive alternate for *not* or *don't*. If the Sentence Operator analysis is right, one is left with the highly unlikely scenario that children and adults analyze *no* in entirely different ways.

Second, the Sentence Operator analysis is unlikely to be the correct analysis for particular negative constructions like external clausal negation. In recent publications, I argued that children use external clausal negation, like adults, to express exclamative metalinguistic negation (Drozd (1995, 2001)), a colloquial use of external clausal negation that is used to object to a previous utterance (Horn (1989)). Under this analysis, a child's negation like *No Leila have a term* is analyzed as having the meaning and syntactic structure of an adult exclamative like *No way Leila have a turn*. Under this view, external clausal negation in child English has nothing to do with internal clausal negation as the Sentence Operator analysis would claim.

A third problem is overall coverage. Aside from the early seminal research by Bloom (1970), Bellugi (1967), and Klima and Bellugi (1966), theoretical research on child English *no* has focused exclusively on the formal syntax of children's internal and external clausal negations. However, the overt forms of the vast majority of *no* constructions in child English do not resemble clausal negation.

In this article, I present new syntactic and functional analyses of children's *no* constructions. The results of these analyses support the view that *no* constructions in child English occur most often as well-formed determiner phrases (DPs) in which *no* appears as a determiner. Henceforth, I call this the *DP* analysis. I present three kinds of evidence for the DP analysis. First, I argue that child English *no* constructions like *no water* satisfy distributional criteria for DPs that *no* satisfies the distributional criteria for determiners, and that words like *water* satisfy morphosyntactic criteria for nominal complements in DP. The results show not only that children use many *no* constructions like DPs but also that they represent the abstract syntactic connection between determiner and nominal complement in *no* DPs.

The claim that most clearly distinguishes the DP analysis from the Sentence Operator analysis is that *no* occurs as a determiner in early child English. Normally, it would be sufficient to show that a particular item is a determiner in a language by showing that the term satisfied standard distributional tests for determinerhood. However, child English *no* is different. We already know that children produce *no* in a variety of positions other than determiner position and

often use *no* in ungrammatical ways. For the determiner analysis to be convincing, it is also necessary to show that the occurrence of *no* in determiner position is independent of its occurrence in these other positions. In section 4, I provide several kinds of evidence for independent usage.

The second kind of evidence has to do with elliptical negation. One problem that any analysis of *no* constructions in child English must deal with is how to analyze elliptical negative expressions like *no ice cream*, the grammatical status of which cannot be determined on the basis of distributional criteria. The proper analysis of children's elliptical utterances has traditionally been a difficult problem in language acquisition research. One of the central issues has been how to reconcile the existence of ungrammatical elliptical expressions in child languages with the Continuity Assumption.

The standard assumption guiding much language acquisition research and nearly all research in early child negation is that children are learning the standard registers of their target languages. When it comes to the acquisition of English, Standard English is assumed to be the appropriate yardstick for measuring the grammaticality of children's utterances. Because *no* constructions in child English are typically elliptical expressions, they are commonly analyzed as ungrammatical versions of complete sentential negations in Standard English. The problem with this approach is that it obscures any competence a child might be illustrating in his or her use of elliptical negation.

I adopt the alternative view that both colloquial and standard registers of the adult language count as equally important measures of grammaticality for children's utterances. The benefits of adopting this view become apparent when one looks at children's nonsentential negatives like *no ice cream*. I show that, in the vast majority of cases, these negatives are best analyzed as grammatical instances of discourse ellipsis, specifically as elliptical *there*-existential sentences (*No ice cream* < *There is no ice cream*) or grammatical instances of adjacency ellipsis or idiomatized ellipsis (Klein (1993)). These analyses suggest that children grasp the grammatical rules and principles regulating the computation of discourse ellipsis. This is precisely what is expected under the Continuity Assumption, once the domain of the assumption is extended to the grammar of colloquial language.

The third source of evidence comes from a statistical comparison of the *no* constructions in child English and in the input. The main results of these analyses suggest that children learning English do indeed model their *no* DPs on the uses of *no* DPs in the input, as expected under the DP analysis and Continuity Assumption.

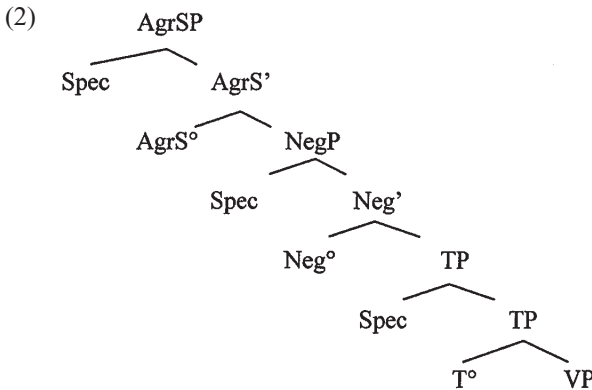
The article is structured as follows. In section 2, I summarize the theoretical assumptions regarding the syntax of sentence and DP negation that I am assuming in this article. In section 3, I present the results of a preliminary analysis of the *no* constructions culled from the spontaneous speech of 10 monolingual English-speaking children. In sections 4, 5, and 6, I present the three kinds of evidence for the DP analysis. In section 7, I summarize and discuss the results.

2. THEORETICAL ASSUMPTIONS

2.1. No Constructions in Standard English

No occurs in a variety of syntactic positions in Standard English. It occurs perhaps most often in determiner position but also as an adjectival modifier (*This is no good/no different*), as an adverbial modifier (*She no longer likes champagne*), as a verb (*She's always noing and yesing me*), as reported speech (e.g., *He said no*), and in reduced concessives like *Bad weather or no, we are leaving tomorrow* (Quirk, Greenbaum, Leech, and Svartvik (1985)). Here, my focus is on the grammar of *no* DPs like *no senator*.

I assume a Minimalist Program analysis of sentential negation (Chomsky (1995)). In this framework, English sentence negation is assumed to require the presence of a NegP (Haegeman (1995), Pollock (1989)) situated between tense phrase (TP) and subject agreement projection (AgrSP; Belletti (1990), Haegeman and Guéron (1999)), as shown in (2).



No constructions like *no senator* are analyzed as DPs consisting of a D° *no* and a noun phrase (NP) complement *senator*. Following Haegeman (1995), I assume that negative DPs are associated with negative operators in [Spec, NegP], which are subject to the Neg Criterion.

- (3) The Neg Criterion (Haegeman (1995, 134))
 - a. A NEG operator must be in a Spec-Head configuration with an X°[NEG].
 - b. An X°[NEG] must be in a Spec-Head configuration with a NEG operator.

The Neg Criterion can be satisfied in a number of ways. Haegeman (1995, 185) proposed that a subject or object negative DP in English forms a representa-

tional chain with an expletive operator OP_i in [Spec, NegP] that serves as the sentential scope marker for the negative DP. The operator forms a Spec-Head configuration with Neg° , satisfying the Neg Criterion. The relevant structures for the sentences *No senator smokes* and *John saw no senator* are given in (4a) and (4b), respectively.

(4) a. No senator smokes.

[AgrSP [Spec [DP no senator]₁] [AgrS' [AgrS^o smokes]] [NegP [Spec OP₁ [Neg^o [Neg]]

...

b. John saw no senator.

... [AgrS^o saw] [NegP [Spec OP₂ [Neg^o [Neg]]] [TP [VP [DP no senator]₂]]

Other researchers have proposed that negative DPs occur in [Spec NegP] at Spell-Out (Kayne (1998)) or at Logical Form (Beghelli and Stowell (1997)) to check their Neg features. Either of these approaches may also be assumed here.

One central finding reported in this article is that (elliptical) negative *there*-existential sentences are productive in early child English. I assume that *there* occurs in a sentence like *There is no champagne* as a pronominal determiner (Radford (1997, 151)) in [Spec, AgrSP], as shown in (5). *There* carries a strong definiteness (D) feature, which is checked via Spec-Head agreement with AgrS^o, but neither a Case feature nor Φ -features (person, number, gender). The *associate no champagne* occurring in *V'* carries a Neg feature, Φ -features, and Nominative Case (Vikner (1995, 179)). The Case and Φ -features of the associate are transmitted to the expletive DP via chain formation (Safir (1985), Vikner (1995)) or covert movement (Chomsky (1995)), where they are checked with AgrS^o. Sentence negation is realized in (5) by the representational chain $\langle OP_3, [DP \text{ no champagne}_3] \rangle$. The copular verb *is* in (5) has been moved from V° to AgrS^o through T° and Neg^o.

(5) [AgrSP [Spec There₁] [AgrS' [AgrS^o is₂]] [NegP [Spec OP₃ [Neg^o t₂ NEG]] [TP t₂ [VP t₂ [DP no champagne_{1,3}]]]]]

Complex postcopular strings of the form [DP XP] (where XP is PP, VP, or ADVP) as in *no champagne on the table* are assumed to consist of a subject DP followed by a coda (e.g., Comorovski (1995), Keenan (1987)). The coda functions as an adjunct predicate linked by predication to the subject DP (indicated by coindexation; Comorovski (1995, 149)). The structure for a sentence like *There is no champagne on the table* looks like (6).

(6) [AgrSP [Spec There₁] [AgrS' [AgrS^o is₂]] [NegP [Spec OP₃ [Neg^o t₂ NEG]] [TP t₂ [VP t₂ [DP no champagne_{1,3,4}] [Coda on the table]₄]]]]]

It is currently debated whether [DP₁ XP₁] constructions are DPs or small clauses. I refer to them here simply as complex DPs to distinguish them from simple DPs like *no champagne*.

2.2. Discourse Ellipsis With *No* DPs in Colloquial English

I argue in this article that bare *no* DPs like *No ice cream* occur as grammatical instances of discourse ellipsis in child English. Discourse ellipsis in natural languages is a poorly understood phenomenon. Rather than present a detailed summary of various classes of discourse ellipsis, I restrict the discussion to three specific classes of elliptical expressions discussed by Klein (1993) and Quirk et al. (1985), which, I argue, occur in both adult and child English. These are *adjacency ellipsis*, *idiomatized ellipsis*, and *situational ellipsis*.

Klein (1993) described adjacency ellipsis as one class of linguistically controlled ellipsis in which elided material must be recoverable from an immediately previous utterance. A typical case is an elliptical response to a *wh*-question, as in the following discourse: A: *Who drank champagne?* B: *Joan*. I extend this class to include particular uses of bare *no* DPs, such as those shown in (7) to (9). Note that the *no* DPs in these examples are generally unacceptable if uttered as opening remarks.

- (7) A: Jan bought no French champagne.
 B: No French champagne. Too bad.
 B: No French champagne? Why not?
 B: No French champagne! You're joking!
- (8) A: Who has no champagne?
 B: No champagne. (speaker pointing to speaker's glass)
- (9) A: Did Jane drink any champagne at the party?
 B: Nope. No champagne.

Klein's (1993) idiomatized ellipsis is another class of linguistically controlled ellipsis. Included in this class are requests like *champagne* in (10). I assume that rejections like *no champagne* in (11) also belong in this class.

- (10) A: Champagne, please. (A is sitting at a bar)
- (11) A: No champagne (for me). (A being offered a glass of champagne)

These utterances are acceptable without previous linguistic context. However, there is evidence from German that such cases are linguistically controlled. As Klein (1993, 4) explained, one can use *Einen schwarzen* 'A black one' in a café to express something like *Bringen Sie mir einen schwarzen Kafee* 'Bring me a black coffee'. However, other elliptical expressions that feature dative or nominal rather than accusative case marking, like *eines schwarzen* or *einem schwarzen*, respectively, are unacceptable. This suggests that an accusative case-marking verb like *bringen* is present. However, because the missing material is not recoverable from

context, these cases are treated as idioms. This analysis extends straightforwardly to rejections. *Keinen schwarzen* ‘No black one’ is an acceptable rejection in a café, whereas *Keines schwarzen* and *Keinem schwarzen* are not. I assume that rejections like (11) are also instances of idiomatized ellipsis on these grounds.

According to Quirk et al. (1985), elliptical expressions are to be classified as instances of situational ellipsis if the missing material can be inferred from nonlinguistic contextual clues alone. Situational ellipsis typically involves the omission of a root (expletive) subject and auxiliary operator that have been assigned weak stress and low pitch, for example, (I’m) *Afraid not*, (Is there) *Anyone in?*, (Are you/Are we) *Happy?*, (It is a) *Pity he won’t help* (Quirk et al. (1985, 888–889)).

Quirk et al.’s (1985) analysis extends straightforwardly to bare DPs like *no champagne*, which, when used to express nonexistence, can be classified as elliptical versions of negative *there* existential sentences like *There is no champagne*. One source of evidence for this view is that bare *no* DPs used to assert nonexistence occur with *there* tags just as in full *there*-existential denials, as shown in (12) and (13). This suggests not only that DPs have a sentential base consisting of *there + be* but also that the missing verb is *be* and not some other presentative verb like *arrive* or *have* (**There arrived no champagne at this party, did/didn’t there?*).

(12) There’s no champagne at this party, (full *there*-existential)
is there?

(13) No champagne at this party, is there? (elliptical *there*-existential)

Second, bare DP existential denials and DPs in negative *there*-existentials obey the same distributional restrictions. It is well known that weak DPs (DPs with weak determiners) can appear in subject position in *there*-existentials, whereas strong DPs, with few exceptions, cannot (e.g., Milsark (1977)). This is shown in (14) and (15). Milsark also showed that weak DPs cannot be predicated of individual-level predicate codas, although codas with stage-level predicates are acceptable. This is shown in (16) and (17).

(14) There are no/many/some/three champagnes at this party.

(15) There is/are *every/*all/*most champagnes at this party.

(16) *There are no cats intelligent.

(17) There are no cats on the lawn.

As shown in (18), either weak or strong partitive DPs can occur in postcopular subject position if the DP of the *of* phrase introduces a novel referent. However,

only weak partitive DPs can occupy this position if the DP of the *of* phrase is anaphoric (Comorovski (1995, 148)), as shown in (19).

- (18) There are all/most/none/many/some/three of yesterday's exams to correct.
- (19) A: Did you correct yesterday's exams?
 B: No. *There are most/all/(of them) left to correct.
 B: No. There are many/some/three (of them) left to correct.

Finally, as Lumsden (1988) observed, strong DPs can occur in subject position in *there*-existentials if the domain of (universal) quantification is construed as a set of kinds (e.g., breeds) rather than individuals (Carlson (1977)). This is shown in (20) and (21).

- (20) *There's every dog at this competition.
- (21) There's every breed of dog at this competition.

Bare DPs used to assert or deny existence obey the same distributional restrictions. Bare weak DPs occur naturally to express (non)existence, whereas strong DPs do not (22). Moreover, bare weak DPs occur only with stage-level codas (23).

- (22) No/Many/Some/Three/*every/*all/*most champagne(s) left.
- (23) No/Many/Some/Three cats on the lawn/*intelligent.

Bare partitive DPs can occur with either weak or strong determiners if the *of* phrase has a novel referent (24). However, only bare weak DPs are acceptable in anaphoric environments (25).

- (24) All/Most/Many/Some/Three of yesterday's exams left to correct.
- (25) A: Did you correct yesterday's exams?
 B: Nope. *Every one/*All/*Most (of them) left to correct.
 B: Nope. Many/Some/Three (of them) left to correct.

Finally, bare universally quantified DPs, like their embedded counterparts, can denote kinds but cannot denote individuals.

- (26) (A arrives at a dog competition)
 A: Look! * All dogs/*Every dog.
 A: Look! All kinds of dogs/Every kind of dog.

These facts suggest that bare *no* DPs occur in colloquial English as elliptical negative *there*-existential sentences.

I assume, extending a suggestion by Chomsky (1995, 126) regarding parallel VP ellipsis, that discourse ellipsis of the kinds just discussed is derived by deleting phonetic material at Phonetic Form (PF). Under this view, *there*-existentials like *There is no champagne* are spelled out during syntactic computation and sent to PF, at which level the expletive and copular verb are marked as optionally deletable. Deletion rules then apply to the marked material when appropriate, leaving bare DPs like *no champagne*.

3. DATA AND PRELIMINARY ANALYSIS

The data for this study consist of all of the multiword utterances including the word *no* in the spontaneous speech of 10 monolingual English-speaking children. In Table 1, I present the general information regarding these and other data I use in the analyses.

The spontaneous speech samples used in this study were found in the longitudinal transcripts stored in CHILDES (MacWhinney and Snow (1985)). The KWAL function from the CLAN program available from CHILDES was used to extract every use of *no* in the recorded speech of the children and other speakers in the transcripts. Each utterance with *no* was culled in a discourse window, consisting of three conversational turns before and after the target negative. The extraction of *no* utterances began with the first transcript available for each child and ended with the child's final transcript at age 3;4 (when available).

TABLE 1
Child and Input Data Used in the Study

<i>Child</i>	<i>Corpus</i>	<i>Age</i>	<i>Child Data</i>			<i>Input Data</i>		
			<i>Total no Utts.</i>	<i>Total don't Utts.</i>	<i>Total not Utts.</i>	<i>Total no Utts.</i>	<i>Total Utts.</i>	
Abe	Kuczaj	2;4-3;3	858	863	397	12,547	310	12,378
Adam	Brown	2;3-3;4	928	431	320	25,830	993	14,518
Eve	Brown	1;6-2;3	527	67	112	12,473	600	15,324
Naomi	Sachs	1;2-3;3	350	0	84	14,306	423	10,389
Nathaniel	Snow	2;5-3;4	492	0	102	12,895	634	20,159
Nina	Suppes	1;11-3;3	1,213	577	347	32,208	814	35,397
Peter	Bloom	1;10-3;1	1,599	393	470	30,255	1,142	34,349
Ross	MacWhinney	2;6-3;4	625	269	242	7,960	355	7,456
Sarah	Brown	2;3-3;4	514	122	78	16,848	615	16,630
Shem	Clark	2;2-3;1	1,484	88	235	17,939	676	23,728
Totals			8,590	2,810	2,387	183,261	6,562	190,328

Note. Utts. = utterances.

The children produced a total of 183,261 utterances; 8,590 (5%) of these consisted of either the single word *no* (e.g., A: *Did you sleep?*, B: *No*) or the word *no* in a multiword utterance. The total number of *analyzable no constructions* was derived by excluding the following *no* utterances from the total: (i) single word anaphoric *no* (which made up the majority of *no* utterances overall); (ii) a child's immediate repetition of her own *no* construction; (iii) *no* constructions interrupted by unintelligible speech; (iv) *no* constructions used in songs, stories, or games; and (v) unanalyzable *no* constructions that could not be clearly assigned a discourse function (see section 5) on the basis of available discourse and contextual information in the transcripts. This left a total of 384 analyzable *no* constructions (henceforth, the *primary data*).

A preliminary contextual analysis was performed to get a first look at what kinds of *no* constructions occurred in the primary data. Words other than *no* were assigned to a lexical or functional category (e.g., determiner [Det], common noun [CN], verb [V], adjective [ADJ], etc.) using adult lexical category assignments and surrounding linguistic context as a guide. Word combinations were assigned to phrasal categories when possible. *Be* in main verb position was categorized as a copular verb. Any noncopular verb (including *have*) was categorized as a *relational verb*. An utterance was assigned to the clause category if it included what would be considered a main clause subject and predicate in English. These included constructions like *There no pen*, which were analyzed as negative *there-existential* clauses with missing copular verbs. Instances of *no more*, which occurred often in the children's speech, were set aside as a distinct DP type because the status of *more* is unclear (adjective or noun). When *more* occurred before a CN, as in *No more water*, it was categorized as an adjective.

No was categorized as a determiner if it immediately preceded either a CN/CN phrase, an ADJ followed by a CN/CN phrase, or *more*. Combinations of these items in the expected order were assigned to the DP category. *No* was categorized as reported speech if it occurred following a mental verb or a verb of saying, as in *I guess no* or *She said no*, and as a modifier if it occurred before an adjective like *good* or an adverb like *longer*. If *no* occurred in a position where it was not found in either colloquial or Standard English, it was not assigned to a syntactic category. Rather, it was labeled with respect to (i) the constituent it appeared to combine with and (ii) its position relative to that constituent. If *no* preceded a clause (with overt subject), it was labeled *preclausal* and the entire construction was categorized as an external clausal negation. If *no* occurred immediately before a verb or a VP with an overt verbal head, it was labeled *preverbal* and the entire construction was categorized as an internal clausal negation, whether it occurred with an overt subject or not. The remaining cases were categorized as *other*.

The results of the categorial assignments are presented in Table 2.

As Table 2 shows, 91% of the children's analyzable *no* constructions occur in just four syntactic types: DP ($M = 65\%$), internal clausal negation ($M = 13\%$), reported speech contexts ($M = 8\%$), and external clausal negation ($M = 5\%$). The re-

TABLE 2
Distribution of Analyzable *No* Constructions by Construction Type

Child	DP		Construction Type								Totals	
			Internal Clause Negation		Reported Speech		External Clause Negation		Other			
	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.
Abe	66	19	3	1	28	8	0	0	3	1	100	29
Adam	50	32	19	10	3	2	8	5	20	15	100	64
Eve	78	28	5.5	2	3	1	8	3	5.5	1	100	35
Naomi	67	10	13	2	7	1	0	0	13	2	100	15
Nathaniel	60	18	17	5	7	2	3	1	13	4	100	30
Nina	56	23	19	8	3	1	12	5	10	4	100	41
Peter	72	43	13	8	5	3	7	4	3	2	100	60
Ross	67	14	0	0	28	6	0	0	5	1	100	21
Sarah	54	19	26	9	17	6	0	0	3	1	100	35
Shem	85	45	7	4	2	1	0	0	6	4	100	54
Means/Totals	65	251	13	49	8	31	5	18	9	35	100	384

Note. DP = determiner phrase.

maining 9% consists of various other grammatical and ungrammatical negatives including *No yet*, *No to bathroom*, *No that?*, *No good*, *What are you doing no?*, and *No a flag*.

The remainder of this article is devoted to supporting the preliminary categorization of *no* constructions as DPs: the DP analysis. The remaining *no* constructions in Table 2 are also discussed, but only when it is necessary for supporting the DP analysis. For a detailed study of the external clausal negations in child English, see Drozd (1995).

4. DISTRIBUTIONAL AND MORPHOSYNTACTIC TESTS

If the children were actually using negatives like *no water* and *no ice cream* as DPs, we would expect these constructions to exhibit the distributional properties of DPs in English. We would also expect the word *no* in these constructions to exhibit the distributional properties of determiners and the heads of the constituents occurring to the right of *no* to exhibit the distributional and morphosyntactic properties of CNs. I employed two distributional criteria and one morphosyntactic criterion previously used by Valian (1986, 564–565) to estimate how likely it was that the children were using these items like adults.

The first criterion, which I call the *Distribution Criterion*, specifies that if a term occurs in all and only the places that members of a given category do in adult

speech, then that term is a member of that category. Determiners in English must immediately precede a CN/CN phrase in DP or an adjectival phrase including a CN/CN phrase. Determiners generally do not occur with other determiners (**No every glass*, **Most no books*) or with pronominal DPs (**No I*, **That no*). Determiners also do not occur alone as independent constituents (**No is on the sofa*, **There is no*, **I came with no*).

The Distribution Criterion also applies to DPs. *No* DPs appear in all of the major DP positions in Standard English relational and copular sentences, including (postcopular) subject, direct object, and oblique object positions. I also define a position, which I call *bare position*, to mark the position of bare DPs occurring alone as complete utterances in discourse. DPs do not occur in positions reserved for V/VPs, adverbs, and so forth.

The *Multiple Appearances Criterion* specifies that if a term is used in all of the existing syntactic and morphosyntactic variations of a category in all of its locations, then the term is a member of that category. According to this criterion, we expect to find syntactic variation in constituents of the same category across syntactic positions. For example, we expect to find DPs occurring in various argument positions with various kinds of (pre/post)nominal modification, for example, *no more champagne*, *no French champagne*, *no champagne in the refrigerator*, *no champagne sitting on the table*, and so forth.

Last, I use Valian's (1986, 565) Determiner Criterion as the criterion for CN category membership. The Determiner Criterion says that if a word (or the head of a phrase) occurs to the right of a determiner in all of the morphosyntactic subclasses for CNs (count singular, count plural, mass singular, mass plural), then that word belongs to the CN category. Determiner *no* conveniently occurs with all of the CN subclasses. Thus, children who know that *no* occurs with constituents headed by CNs should use these words with the expected morphosyntactic variation.

Satisfaction of this criterion also provides indirect evidence that *no* occurred in the primary data as a determiner. Children might use different morphological subclasses of CNs in their productive language overall but use only one particular class when *no* occurs in determiner position. This would count as evidence that children could represent CNs and *no* as a negative marker for CNs, but it would not be evidence that they represent *no* as a determiner. However, if the children combined *no* with a variety of CN subclasses, we would have evidence that children were able to represent the abstract syntactic connection between determiner *no* and its nominal complements.

4.1. *No* as a Determiner

To properly argue that the children's use of *no* satisfies the Distribution Criterion for determiners, one must show that the preliminary categorization of *no* constructions as DPs in Table 2 is not simply an artifact of the aforementioned proce-

dure I used for assigning words to categories. This requires at least two steps. The first step is to show that the occurrence of *no* in determiner position does not violate the criterion. The second step is to show that the remaining uses of *no* in positions other than determiner position do not violate the criterion. I begin with the first step.

It is already clear that the occurrence of *no* in the constructions analyzed as DPs in Table 2 partially satisfy the Distribution Criterion for determiners. In every case, *no* occurred before a CN(phrase), an ADJ preceding a CN(phrase), or *more*. However, 20 possible counterexamples to the criterion were also discovered. All 20 are cases in which *no* also occurred immediately following a proper name or (expletive) pronoun, such as *Fraser no boot* (Eve, 1;9), *There no country* (Peter, 2;2), and *Dat no Mommy* (Adam, 2;5). These instances can be easily ruled out as violations when we take discourse context into account. For example, Adam's *Dat no Mommy* in (27) is naturally interpreted as an instance of Bolinger's (1977) "right-shifted" negation but with a missing copula. Bolinger noted that right-shifted negatives like *She's no diplomat* do not assert that the referent picked out by *she* is not a diplomat but rather to assert that the referent is not diplomatic. Adam's negative in (27) is likely to be an instance of right-shifted negation, as the context suggests.

- (27) Adam: Dat no Mommy. Dat Mommy.
 (That's no Mommy)
 Mother: That's Mommy.
 (Adam, 2;5)

This analysis blocks the possibility that Adam is using *no* as a negative copula in such utterances, as one would expect under the Sentence Operator analysis.

I turn to the remaining 133 *no* constructions, which constitute 35% of the primary data. The question is whether one should consider these occurrences to be violations of the Distribution Criterion. These occurrences pose a challenge to the criterion because they suggest that children place few distributional restrictions on their use of *no*. However, if children do know that *no* is a determiner, we should be able to find evidence that the occurrence of *no* in determiner position in the children's speech is independent of the occurrence of *no* in other positions. In the following three subsections, I present three kinds of evidence for independent usage.

4.1.1. Grammatical usage. One clear kind of evidence is the grammatical use of *no* in positions other than determiner position. As I mentioned in section 2, *no* is lexically ambiguous in English. It occurs as a preadjectival and preadverbial modifier and as reported speech, as well as in determiner position. If a child is correctly using *no* in a position other than determiner position, we can

use this as evidence that those uses are independent of the occurrence of *no* in determiner position.

Of the 133 remaining *no* constructions, 43 could be rejected as counterexamples to the Distribution Criterion on this basis. All 31 instances of *no* in reported speech contexts (e.g., *He said no*) did not differ from adult uses of *no* in any recognizable way and were analyzed as grammatical instances of reported speech. The remaining 12 grammatical occurrences were put in the *other* category in Table 2. Nine were instances of *No good*, as exemplified in (28). These were analyzed as grammatical instances of elliptical negation (proposed underlying form in parentheses).

- (28) Adam: Need one.
 Ursula: Thank you.
 Adam: No (taking pencil back from Ursula).
No good.
 (This/That pencil is no good)
 (Adam, 2;5)

No also appeared correctly in subject position as a quote, *No is a bad word* (Ross, 3;1). In another two cases, *No bibble-wibble* and *No achoo achoo*, Nathaniel uses negation to object to his mother's earlier expressions. For example, the discourse context in (29) suggests that Nathaniel used *No achoo achoo* to object (perhaps playfully) to his mother's implication that *achoo achoo* is the proper onomatopoeia for a cough. The mother's *Yes achoo achoo* suggests that this is indeed the proper analysis. Such uses of negation are extremely rare but nonetheless acceptable in colloquial English and, particularly, in speech to children.

- (29) (Nathaniel sneezes)
 Mother: Oh achoo. Achoo achoo.
 Nathaniel: No. *No achoo achoo.*
 (Don't say "achoo achoo")
 Mother: Yes yes achoo achoo achoo.
 Nathaniel: That a cough.

This leaves 90 *no* constructions to be accounted for. These include the 49 preverbal, 18 preclausal, and the remaining 23 other uses of *no*, all of which are ungrammatical. I now address these cases.

4.1.2. Independent etiologies. One reason for believing that the occurrences of *no* in preverbal and preclausal position are independent of the occurrence of *no* in determiner position, aside from the fact that they are ungrammatical, is that they are likely to have different etiologies.

As many researchers have noted, children's incorrect use of *no* rather than *don't* in preverbal position is likely to be the result of their difficulties with *do*-support (e.g., Stromswold (1990)), but see Harris and Wexler (1996) for a different view). Other *no* constructions in the primary data also appear to be related to *do*-support, such as *Does the needle no working?* (Nina, 3;2) and *Him do no Hulk* (Ross, 3;0). However, children's use of *no* in determiner position is unlikely to be related to a problem with *do*-support. As I argue in section 5, the children's *no* DPs occur correctly as subjects of (elliptical) negative *there*-existentials like *(There is) no water* approximately 71% of the time. Because *there*-existentials do not require *do*-support, it is unlikely that the children are using *no* in these constructions because they have difficulties with *do*-support. The reason they use *no* in determiner position, I argue, is because it is grammatical to do so.

A similar argument can be used to distinguish the children's use of *no* in determiner position and preclausal position. Drozd (1995) recently argued that children's external clausal negations like Peter's *No Mommy cut it* in (30) are used to express exclamative metalinguistic negation, much in the same way that adults might use *No way/Like Hell you're going to cut it!* in colloquial English to strenuously object to the leading question *Do you want me to cut it?* The implied meaning Peter is objecting to and the proposed paraphrase of Peter's negative in (30) are given in parentheses.

- (30) Mother: Do you want me to cut it?
 (Let me cut it)
 Peter: No Mommy cut it.
 (No way Mommy cut it!)
 (Peter cutting bologna with knife upside down)
 (Peter, 2;2)

However, children do not typically use *no* in determiner position as an objection marker. Young children are likely to choose *no* as the external clausal operator in these constructions because *no*, rather than *not* or *don't*, occurs frequently in the input to express objection (de Villiers and de Villiers (1979), Drozd (1995)). As I report in section 5, the children did use *no* in determiner position in idiomatic expressions like *No way!* to express metalinguistic negation. However, these uses occur less than 2% of the time. Furthermore, the objection meaning is inconsistent with children's use of *no* in (elliptical) negative *there*-existentials. Children, like adults, do not use utterances like *There's no water* to express objection but to assert that water is absent.

4.1.3. The distribution of negative markers. One reason for thinking that children don't know that *no* is a determiner is the well-known observation that *no* often appears where we expect *not* and *don't*. All three negative markers often occur in preverbal position in child English. Moreover, young children

sometimes confuse *no* with *don't* and alternate between the two negation markers, sometimes in successive utterances (Bloom (1970), de Villiers and de Villiers (1979)). *No* also occurs in the remaining 23 other constructions in the primary data, most of which are cases in which we would expect to find *not* (31).

- (31) *There's no any water in there* (Abe, 2;9); *No sunny outside* (Adam, 2;3); *No over* (Adam, 2;4); *What you doing no* (Adam, 2;4); *No heavy* (Adam, 2;4); *No a flag* (Adam, 2;4) and *Like no* (Adam, 2;6); *No ready yet* (Eve, 1;11), (Naomi, 2;1); *That no?* (Naomi, 2;1) and *No to bathroom?* (Naomi, 2;1); *No wet* (Nathaniel, 2;5); *No king Nathaniel* (Nathaniel, 2;7); *No right* (Peter, 2;3); *No yet* (Peter, 2;10); *No regular* (Shem, 2;7); *No green* (Shem, 2;3); *Because is no someone in the house* (Shem, 2;5); and *This is no sharp* (Shem, 2;9)

These examples suggest that *no* combines with bare adjectives, DPs, and other determiners in direct violation of the Distribution Criterion for determiners. However, should one interpret the fact that *no* suppletes other negative markers in positions other than determiner position as evidence that they do not know that *no* is a determiner?

If the children did not know that *no* is a determiner and analyzed *no*, in addition to *not* and *don't*, as a member of a single Neg category, then one would expect the relative frequencies of *no*, *not*, and *don't* across the syntactic positions to be similar. If children did know that *no* is a determiner, they should have reserved determiner position for *no*.

To determine how often children may have used negative morphemes other than *no* in determiner position, I analyzed all of the utterances in the sample in which *not* and *don't* occurred in determiner position, as defined previously. The total number of *not* and *don't* utterances collected for this analysis are given in Table 1.

The results show that *don't* appeared in determiner position in the children's speech only .01% (4/2,810) of the time. The examples are *No you don't Mommy* (Abe, 2;9); *Don't Adam foot* (Adam, 2;4); *Don't Nina pat* (Nina, 2;2); and *He don't trunk move* (Nina, 2;2). Although these are ungrammatical utterances, they are unlikely to be cases of *don't* suppleting *no* in determiner position.

Not appeared in determiner position 15% (347/2,387) of the time. However, all of these occurrences were cases in which *not* may have been used correctly as a nominal modifier or a postcopular sentence negation marker rather than as a determiner. Three hundred five (88%) of these could be analyzed as grammatical uses of *not* before mass nouns (16%), plural nouns (6%), names (17%), or before verbs with progressive aspect marking (49%; e.g., *That's not rocking*). The remaining 42 *not* tokens (12%) were ungrammatical. In these cases, *not* occurred before a singular or plural CN, for example, *Not barber* (Abe, 2;9); *That not river* (Adam, 3;0); *That not knee* (Eve, 2;2). These cases are hopelessly ambiguous be-

tween auxiliary copular negations (*That is not a river*) and right-shifted negations (*That is no river*). However, one reason for rejecting the idea that the children were using *not* in determiner position in these cases is that they never produced *not* constructions like *not more*, although *no more* was productive in their speech. The children also did not use *not* incorrectly in relational sentences, as in *I see not toys*. It should also be noted that *no* never occurs in certain contexts reserved for *not*. For example, children never say *no there*, even though *not there* is extremely productive. The absence of these utterance types suggests that the children reserve determiner position for *no*.

It is less clear whether there is sufficient evidence to rule out the eight examples in (31) in which *no* may be combining with another determiner, a DP, or a bare adjective; *There's no any water in there* (Abe, 2;9); *No heavy* (Adam, 2;4); *No a flag* (Adam, 2;4); *No wet* (Nathaniel, 2;5); *No green* (Shem, 2;3); *Because is no someone in the house* (Shem, 2;5); and *This is no sharp* (Shem, 2;9). These examples are categorized as violations of the Distribution Criterion for determiners.

4.1.4. Summary. The fact that *no* often occurred in positions other than determiner position in the children's speech raised the question of whether the children really knew that *no* is a determiner in English, a central claim of the DP analysis. In support of this analysis, I presented three kinds of evidence for the view that *no* occurs independently across syntactic positions. I showed that, in many cases, the children used *no* grammatically as reported speech or as an adjectival modifier in positions other than determiner position. I also argued that the children's use of *no* in determiner, preverbal, and preclausal positions are likely to have different etiologies and are therefore likely to be independent. I then showed that although children use *no*, *not*, and *don't* in certain positions like preverbal position, they reserve determiner position for *no*. These results suggest that the occurrence of *no* in determiner position is independent of the occurrence of *no* in other positions. Because the occurrence of *no* in determiner position in DPs in the children's speech does not otherwise violate the Distribution Criterion, I conclude that the children used *no* as a determiner in these cases.

I now apply the criteria to the children's DPs and CNs.

4.2. Tests for DP

According to the Distribution and Multiple Appearances Criteria, we can consider a *no* construction to be a DP if it occurs (i) in all of the major (argument) positions for DPs and (ii) in the syntactic variation characteristic of DPs across those major positions. The data presented in Table 3 show that the children's DPs overall meet both of these criteria.

Table 3 shows that the children's DPs occurred in three different DP types across five different positions. A child's DP was assigned to subject (SBJ), direct

TABLE 3
Distribution of the Children's DPs by Type and Syntactic Position

DP Type	Syntactic Position of DP											
	SBJ		Relational Clause DO		OBL		Copular Predicate		Bare		Totals	
	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.
No + CN	1.2	3	8.0	20	0.4	1	13.5	34	39.8	100	62.9	158
No + ADJ + CN	0.4	1	0.8	2			4.8	12	17.1	43	23.1	58
No + more	0.4	1	0.4	1			2.8	7	10.4	26	14.0	35
Totals	2.0	5	9.2	23	0.4	1	21.1	53	67.3	169	100.0	251

Note. DP = determiner phrase; SBJ = subject position; DO = direct object position; OBL = oblique object position; CN = common noun; ADJ = adjective.

object (DO), or oblique object (OBL) position if it appeared in subject, direct object, or oblique object position, respectively, in a sentence with a relational main verb. A DP was assigned to copular predicate position if it occurred following an overt copular verb, an expletive pronoun (*there* or *it*), or a demonstrative pronoun (as in (27)). Bare DPs were assigned to bare position. DPs occurred in *wh*-questions (e.g., *Why no Adam in the bathtub?*) three times and only in Adam's speech. These were also assigned to the bare DP position because their grammatical position was unclear.

As Table 3 shows, the children's DPs occurred with some frequency in most of the five DP positions, satisfying the Distribution Criterion for DPs. DPs appeared most often in bare position (67%) and less often in copular predicate position (approximately 21%) and relational clause positions (app. 12%). This overall pattern is consistent across children. DPs occurred in bare position at least once in the speech of all 10 children. They occurred at least once in relational clauses in the speech of 8 children and at least once in copular predicate position in the speech of 7 children. The fact that DPs occurred relatively rarely in relational clauses in the children's speech is likely to reflect an input frequency effect rather than lack of productivity (see section 6.1, Table 8).

The data also show that the children used the *no* + CN DP type most often (63%), followed by the *no* + ADJ + CN type (23%) and the *no* + more type (14%). Each of the 3 DP types was used at least once by all but one child (Sarah). Again, the relative frequency of DP types in the input is likely to be a strong factor contributing to the relative frequencies in the children's speech. Overall, the relative frequency of DP types in the input matches the relative frequency in the children's speech (Table 8).

I interpret these results as satisfying the Multiple Appearances Criterion for DPs.

TABLE 4
Distribution of Common Nouns in *no* DPs by Morphosyntactic Class

DP Position and Type	Common Noun Morphosyntactic Class						Totals	
	Count-Sg		Count-Pl		Mass-Sg			
	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.
Relational clause (SBJ, DO, OBL)								
<i>No</i> + CN	5.1	11	5.5	12	0.5	1	11.1	24
<i>No</i> + ADJ + CN	0.5	1	0.5	1	0.5	1	1.5	3
Copular predicate								
<i>No</i> + CN	6.9	15	4.2	9	4.7	10	15.7	34
<i>No</i> + ADJ + CN	1.2	3	2.8	6	1.4	3	5.6	12
Bare								
<i>No</i> + CN	24.0	52	12.0	26	10.1	22	46.1	100
<i>No</i> + ADJ + CN	6.0	13	9.3	20	4.7	10	20.0	43
Totals	44.1	95	34.3	74	21.7	47	100.0	216

Note. DP = determiner phrase; count-sg = count singular; count-pl = count plural; mass-sg = mass singular; SBJ = subject; DO = direct object; OBL = oblique object; CN = common noun; ADJ = adjective.

4.3. CNs in DPs

Following the Determiner Criterion, we expect the CN heads in the children's DPs to exhibit the morphosyntactic variation expected of determiner complements. Table 4 shows the distribution of three CN classes (count singular, count plural, and mass singular) across the two DP types from Table 3 that include CNs.

As these data suggest, the children's CNs occurred with the expected morphosyntactic variation productively in different DP types across syntactic positions, satisfying the Determiner Criterion.

4.4. Summary

The results of a series of distributional and morphosyntactic tests support the preliminary assignment of *no* constructions to the DP category shown in Table 2. The results suggest that the children not only used *no* constructions like *no water* as DPs but also represented the abstract syntactic connection between determiner *no* and the CN heads of its complement NPs in DP.

5. THE DISCOURSE FUNCTIONS OF BARE *NO* DPs

As shown in Table 3, the majority of the children's *no* DPs occur as bare DPs. Because these utterances have been either ignored or analyzed as ungrammatical in previous research, it is important to ascertain whether children use them correctly

as the DP analysis would predict. Standard distributional tests can't be used to determine if children were using bare *no* DPs like adults because these constructions include no surrounding overt linguistic context. However, one can check for grammaticality by comparing how the children used these DPs with how adults use elliptical negation in colloquial English. If the children's uses are consistent with adult uses, there would be evidence not only for the DP analysis but also for the view that the children knew the grammatical principles of discourse ellipsis regulating the use of bare *no* DPs in discourse.

To proceed with this analysis, I introduce a new method for assigning discourse semantic functions to elliptical negatives. I begin with a critical evaluation of the currently standard method for assigning meanings to children's elliptical negatives.

5.1. Bloom's Taxonomy of Negative Events

The most influential method for analyzing the meaning of children's early elliptical utterances was developed by Lois Bloom. Children's elliptical utterances typically pose problems for analysis because they are semantically and syntactically ambiguous. Bloom's (1970) widely adopted solution to this problem was to use local discourse and situational context to determine which negative events children were using their negative utterances to describe. Bloom (1970, 173) observed that three children, Kathryn, Gia, and Eric, used negation to express three kinds of events: nonexistence, rejection, and denial. Bloom and Lahey (1978) later expanded this set to include other negative categories. Some of these are given in (32) with Bloom and Lahey's (1978, 111–112, 189–190) descriptions:

- (32) Bloom and Lahey's (1978) Taxonomy of Negative Events (Partial):
- a. *Nonexistence*: “Some object does not exist in context, or the child does not see it in the context, but there is some reason to expect it to be there or to look for it.”
 - b. *Rejection*: “Some object or action or happening either exists in the context or is imminent or about to exist in the context, and is opposed by the child.”
 - Polite rejection*: Involves “things that the child does not want to do or to have, and the rejection may be paraphrased as ‘I don't want. . . .’”
 - Imperative rejection*: Included things that the child did not want others to do, and . . . may be paraphrased as “Don't. . . .”
 - c. *Prohibition*: “Involves the child's opposition to something someone else is doing or intends to do”

- d. *Denial*: and “carried the added information that the opposed act is forbidden by authority.”
 “Children are negating the truth of a statement made by someone else.”

Bloom used semantic category assignments as well as children’s overall speech production for estimating which paraphrase was appropriate for a child’s negative and which constituents could reasonably be posited as missing but recoverable for the child. For example, Bloom (1970) proposed that *I don’t want dirty soap* to be the underlying form for Kathryn’s *No dirty soap*, under the interpretation that “the dirty soap was being negated, but indirectly in that Kathryn was negating ‘using’ or ‘wanting’ the dirty soap” (152). She then posited *I* and *want* as missing constituents on the basis that children also used these constituents in other utterances either at the same age or shortly after. Similar arguments were used to derive Eric’s nonexistence statement *No ’chine* (Bloom (1970, 77)) from the fuller form *Not play machine* (Bloom (1970, 164)), *No truck* from *That is not a truck*, and *No flush* from *Don’t flush* (Bloom and Lahey (1978)). Bloom (1970) went on to argue that “the operation of negation within a sentence increased its complexity, and thereby necessitated reduction in the surface structure” (p. 156).

My main objection to Bloom and Lahey’s (1978) method is that its results are inconsistent with the Continuity Assumption. One corollary of the Continuity Assumption that is rarely mentioned or exploited in developmental studies is that there is continuity between the grammars of the colloquial languages as well as the standard languages of children and adults. The null hypothesis under Continuity is that a child’s grammatical rules of discourse ellipsis are drawn from the same basic rule types as adults’ grammatical rules of discourse ellipsis. This corollary is important because it imposes strong constraints on the kinds of grammatical analyses and paraphrastic descriptions one can reasonably propose for children’s elliptical utterances.

Bloom’s approach to analyzing child language negation has been extremely helpful in identifying what kinds of meanings children use their first negatives to express. However, it goes beyond what we can reasonably expect given Continuity. Negatives like *no dirty soap*, *no ’chine*, *no truck*, and *no flush* are clearly not derivable from sentential forms like *I don’t want any dirty soap*, *Not play machine*, *That is not a truck*, and *Don’t flush*, respectively, using any grammatical rule of discourse ellipsis. There is no grammatical rule of ellipsis in English that deletes a main verb like *want* or *play* in the scope of a negative operator, nor is there a grammatical rule or principle in English that replaces a negative morpheme like *no* with either *not* or *don’t*. If Continuity is to be taken seriously, an alternative method for assigning meanings and underlying forms to children’s bare DPs must be found.

5.2. A New Method for Evaluating the Meaning of Elliptical Negation in Child English

A more linguistically motivated and restrictive approach to analyzing children’s bare *no* DPs is to restrict the kinds of meanings and paraphrases one can assign to these negatives to those that are consistent with how bare DPs are used in colloquial adult English. In section 2, I mentioned that bare *no* DPs occur in colloquial English as instances of situational, idiomatized, and adjacency ellipsis. In Table 5, I provide a nonexhaustive list of examples of these ellipsis types. I argue next that all of these kinds of discourse ellipsis also occur in child English.

The names of the discourse functions assigned to these examples are similar in some cases to Bloom’s. However, all of these examples are grammatical and reflect the application of some grammatical principle or rule of discourse ellipsis. One benefit of this approach is that it puts stricter limits on the kinds of meanings and paraphrases one can posit for children’s bare DPs than does Bloom’s approach. For example, Bloom and Lahey’s (1978) analysis of the denial *No truck* as somehow derived from the Standard English *That is not a truck* is not possible under the present approach because there is no grammatical rule for replacing *no* with *not*. Second, Bloom (1970, 191) included negatives like *No fit here*, *Kathryn not quite through*, *No go in*, and *Can’t see* as expressions of nonexistence. I am proposing instead that negative *there*-existentials like *There is no champagne* are the only proper sources for underlying forms and paraphrases for bare *no* DP existentials.

TABLE 5
Discourse Functions of Bare DP Ellipsis

<i>Discourse Function</i>	<i>Context and Usage</i>	<i>Type of Ellipsis</i>	<i>Source of Paraphrase</i>
Existential denial	(A finds no champagne) A: <i>No champagne</i>	Situational	<i>There</i> -existential
Imperative prohibition	(A warning B) A: <i>No champagne</i> (for you!).	Situational	<i>There</i> -existential
Confirmatory denial	A: George drank no champagne. B: <i>No champagne</i> . Too bad.	Adjacency	Previous utterance
Response to yes or no question (denial)	A: Did George drink any champagne? B: Nope. <i>No champagne</i> .	Adjacency	Previous utterance
Recapitulatory question	A: George drank no champagne. B: <i>No champagne?</i> Why not?	Adjacency	Previous utterance
Exclamative	A: George drank no champagne. B: <i>No champagne!</i> You’re joking.	Adjacency	Previous utterance
Imperative benefactive	(A offers B champagne) B: <i>No champagne</i> (for me).	Idiomatized	Benefactive construction

Note. DP = determiner phrase.

tential denials in both adult and child languages. Negative *there*-existentials are used specifically to deny existence. Hence, they are the most reasonable paraphrases for elliptical assertions of nonexistence.² Negatives like *Kathryn not quite through* do not deny existence. They assert that a particular relational property expressed by the predicate (which is not existence) does not hold of a subject. In the present system, they would be analyzed as ordinary (relational) denials.

My approach to prohibitional meaning is also more restrictive than Bloom and Lahey's (1978). Like these researchers, I categorize *no* DPs as imperative prohibitions if they are used by a speaker with authority to deny permission to carry out a particular act involving the referent of the DP. However, the present approach diverges from theirs when it comes to paraphrasing prohibitions. Bloom and Lahey assumed that *don't* imperatives were the underlying forms for children's imperative rejections and prohibitions. Under the present system, bare DPs can be analyzed as imperative prohibitions only if they are elliptical negative *there*-existentials. The assumption that bare DP imperative prohibitions are elliptical *there*-existentials is supported by the fact that they occur with *there*-tags (*(There is to be) No champagne, is there?*) and do not occur with individual-level codas (*(There are to be) No firemen drunk/*intelligent*).

Finally, I propose that the bare DPs Bloom and Bloom and Lahey (1978) would have categorized as polite rejections are better analyzed as elliptical imperative benefactives, one instance of Klein's (1993) idiomatized ellipsis (see section 2). Since Bloom's original analysis, it has become standard to call a child's use of negation to express opposition to an (imminent) object or event a rejection. The assumption underlying this classification seems to be that the child uses negation to describe his or her own intentional state. From this perspective, the *I don't want X* paraphrase seems natural. However, as stated previously, this analysis violates Continuity. To avoid replacing *no* with *don't*, one might choose other paraphrases that preserve the child's choice of negative morpheme such as *I want no milk*, *I would like no milk*, or *I prefer no milk*. However, there is no evidence that these are correct underlying forms. For example, there is no appropriate interrogative tag for *No milk* that would suggest that such a clausal analysis is correct, *No milk *will I/*do I/*would I?*

I propose instead that the predicate that may be missing from any particular use of a bare DP rejection is one of the many verbs that occur with benefactive PPs such as *for me*, including "prepare" verbs such as *bake* and *clean*, "get" verbs such as *buy*, *get*, or *bring*, and "verbs of selection" such as *choose*, *pick*, and *prefer* (see Levin (1993, 48–49) for a list of benefactive constructions). This analysis captures the desiderative meaning Bloom apparently wanted to capture with her

²Bloom also found a few cases of expletive *there* in the speech of her subject Eric at Stage II. However, her analysis is very different from the one I propose. Bloom (1970) suggested that Eric's *there* (*is*) be considered a pivot occurring before the negative particle *no* (Bloom (1970, 128)). Under this scenario, Bloom's negation reduction rule $X-Ng-Y > Ng-Y$ (where $X = there$) would presumably apply to delete the expletive, producing the overt form, for example, *no more*.

polite rejection category but does not involve the problematic *I don't want paraphrase*. From this perspective, bare *no* DPs can be categorized as rejections only if they can occur felicitously with benefactive *for me* paraphrases, as in *No water for me (thanks)*. Assuming that the underlying form is imperative (Klein (1993)) would further capture why interrogative tags are disallowed.

5.3. A New Discourse Analysis of Bare *No* DPs in Child English

I performed a token-by-token analysis of the 169 analyzable bare *no* DPs in the children's speech to determine if they were consistent with how adults use such DPs in colloquial English. A DP was categorized as an instance of adjacency ellipsis if such a categorization was felicitous in the discourse, the DP was echoic, and the missing sentential constituents could be recovered from an immediately previous utterance. A DP was analyzed as an existential denial if adding the prefix *There is/are* to the utterance created a grammatical negative existential that was felicitous in context and captured the child's intended meaning. A DP was categorized as an imperative prohibition if it could occur felicitously with a *there is/are to be* or *there is/are* prefix and as an imperative benefactive if a *for me* tag could be felicitously added to the child's negation.

The results of the analysis are presented in Table 6.

TABLE 6
Bare *No* DPs by Ellipsis Type and Discourse Function

Child	Type of Ellipsis													
	Situational Ellipsis				Adjacency Ellipsis				Idiomatized Ellipsis					
	Existential Denial		Imperative Prohibition		Recapit. Question		Other Denial		Imperative Benefactive		Other		Totals	
	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.
Abe	66.6	6	22.3	2	0.0	0	0.0	0	11.1	1	0.0	0	100	9
Adam	51.8	14	22.2	6	11.1	3	11.1	3	0.0	0	3.7	1	100	27
Eve	73.7	14	10.5	2	0.0	0	5.3	1	10.5	2	0.0	0	100	19
Naomi	44.5	4	11.1	1	11.1	1	33.3	3	0.0	0	0.0	0	100	9
Nathaniel	50.0	9	16.6	3	5.6	1	5.6	1	11.1	2	11.1	2	100	18
Nina	71.4	15	14.3	3	4.8	1	0.0	0	9.5	2	0.0	0	100	21
Peter	82.7	24	3.5	1	10.3	3	0.0	0	0.0	0	3.5	1	100	29
Ross	44.5	4	0.0	0	11.1	1	11.1	1	11.1	1	22.2	2	100	9
Sarah	36.3	4	9.1	1	36.3	4	9.2	1	9.1	1	0.0	0	100	11
Shem	76.5	13	5.8	1	0.0	0	0.0	0	5.8	1	11.9	2	100	17

Note. DP = determiner phrase; Recapit. = Recapitulatory.

All but 8 of the 169 tokens could be assigned to one of the discourse functions in Table 5. In the majority of cases, the children used bare *no* DPs to express existential denial (63%). Less frequently, children used them to express imperative prohibition (12%), as recapitulatory questions (8%), and as imperative benefactives (6%). The children's confirmatory denials, exclamatives, and responses to yes or no questions, combined together under the other denial category, constitute another 6% of the total. The 8 cases that could not be assigned to any of these functions were assigned to the other column in Table 6.

I first discuss the two types of situational ellipsis: existential denial and imperative prohibition.

Two representative examples of the children's bare DP existential denials and imperative prohibitions are given in (33) to (37) with their assumed underlying forms in parentheses. All of these uses are analyzed as grammatical instances of situational ellipsis.

Existential Denial

- (33) Abe: Mom please I want my squirt gun.
 Mother: Ok, here you go, don't squirt me anymore, ok?
 Abe: My squirt gun! I can't get water in it, help me please, I can't get water in it. *No water in here, Daddy.*
 (There is no water in here, Daddy)
 Father: Ask Mommy to put some in. She's right there.
 (Abe, 2;9)
- (34) Adult: And she dropped her basket.
 Shem: Yeah, she, she is, no, no, no, no, no!
 (a picture shows everything falling out of the basket)
 No food, no, *no ice cream in there.*
 (There is no ice cream in there)
 Adult: No, there's nothing in there, just nothing.
 (Shem, 2;4)

Imperative Prohibition

- (35) Mother: Do you want me to jump? Here, let me have it.
 Nina: No. *No jump rope out here.*
 (There is (to be) no jump rope out here!)
 Mother: Give it to me.
 (Nina, 3;0)
- (36) Mother: I have to do dishes first.
 Abe: No, *no dishes first.* Why you have to do dishes?
 (There is to be/There must be no dishes first)
 (Abe, 2;10)

These analyses can be supported from two directions. First, if the bare DPs in these examples are elliptical *there*-existentials, as I claim, one would expect the relative frequency of these DPs and the DPs in subject position in full *there*-existential clauses to be positively correlated by type because, by hypothesis, they have the same underlying forms. To test this prediction, I counted the number of *no* DPs occurring in bare position and in subject position in full *there*-existentials in the children's data. Only the bare DPs categorized as existential denials or imperative prohibitions were included in the analysis. The counts and percentages are given in Table 7.

These data show that the DPs occur in the same DP types in the two positions. A correlational analysis showed that those *no* DP types that occurred relatively more often in subject position in full *there*-existentials also occurred relatively more often in bare DP position, $r(8) = .75, p < .033$. This result supports the analysis of the children's bare DP existential denials and imperative prohibitions as elliptical *there*-existential clauses. The presence of complex DPs in the data provides additional evidence that the children were building complex bare DPs by combining simple negative PPs with codas.

One might object to this analysis on the grounds that these bare DPs have equally valid alternative analyses. Reconsider Abe's *No water in here* in (33). One alternative to the *there*-existential analysis is that *No water in there* consists of a DP *No water* and a reduced relative clause (*<No water which is in there>*). However, if this hypothesis were correct, one should find DPs with reduced rela-

TABLE 7
Distribution of *No* DP Types in Subject of *There*-Existential and Bare Positions (Existential Denials and Imperative Prohibitions Only)

DP Type	Syntactic Position			
	Subject of <i>There</i> - Existential Denial		Bare	
	%	Raw No.	%	Raw No.
Simple				
<i>No</i> + CN	35.4	17	26.1	31
<i>No</i> + <i>more</i>	10.4	5	16.0	19
<i>No</i> + ADJ + CN	10.4	5	27.8	33
Complex				
[<i>No</i> + CN] + [PP]	22.9	11	25.2	30
[<i>No</i> + <i>more</i>] + [PP]	4.2	2	2.5	3
[<i>No</i> + ADJ + CN] + [PP]	4.2	2	0.8	1
[<i>No</i> + CN] + [GER/INF]	4.2	2	0.8	1
[<i>No</i> + CN] + [ADV]	8.3	4	0.8	1
Totals	100	48	100	119

Note. DP = determiner phrase; CN = common noun; ADJ = adjective; PP = prepositional phrase; GER = gerund verb form; INF = infinitival verb form; ADV = adverb.

tive clauses appearing at least some of the time in argument positions in relational clauses as well. However, the children never used such DPs in a relational clause.

Another possibility is that the DP *no water* in Abe's negative is the main clause subject and *in here* the main clause predicate of a copular sentence like *No water is in here*. As is well known, there is a regular correspondence in English between *there*-existential sentences and their nonexpletive counterparts (Quirk et al. (1985, 1403)). If *No water in here* were an instance of situational ellipsis, then it should be analyzed as an elliptical version of the sentence *There is no water in here*. However, if the nonexpletive counterpart analysis were correct, the appropriate underlying form should be *No water is in here*. This distinction is important. Of the two analyses, only the situational ellipsis analysis is grammatical and consistent with the Continuity Assumption.

One argument against the nonexpletive counterpart analysis is that it makes two wrong predictions. If the simple DPs in the children's negatives were actually precopular subjects, then one would expect them to occur with individual-level postcopular predicates just like other nonexpletive counterparts, for example, *No cats are intelligent*. Yet bare DP existential denials and imperative prohibitions do not occur with individual-level predicates in the children's speech. This is already implied by the fact that they are all consistent with the elliptical *there*-existential analysis. The nonexpletive counterpart analysis also wrongly predicts that the children would have used sentences like *No water is in there* productively. However, they are extremely rare in the children's speech.

A second argument against the analysis is that it doesn't cover all of the relevant cases. Of the 107 existential denials found in the data, 30% (32) are complex DPs. Of these 32, 3 (9%)—*No place for the dolly* (Nina, 2;4); *No room for people go and smash* (Shem, 2;3); and *No lock to tie it on* (Shem, 2;9)—have no nonexpletive counterpart (e.g., **No place is for the dolly*). However, these constructions are easily analyzed as elliptical *there*-existentials (*There is no place for the dolly*).

A third argument is that the nonexpletive counterpart analysis predicts awkward or infelicitous paraphrases. The nonexpletive counterparts of the two imperative prohibitions in (35) and (36), *No jump rope is out there* and *No dishes are first*, respectively, are grammatical but unacceptable in context. Similar paraphrases for the two existential denials in (33) and (34), *No water is in here* and *No ice cream is in there*, respectively, are odd. The problem seems to be that the presuppositions associated with the nonexpletive counterparts are not easily resolved in context. For example, the paraphrase *No ice cream is in there* would be felicitous in a context in which the interlocutors found it reasonable to expect that ice cream might have been in the basket. However, the context in (34) does not support this expectation.

In sum, the elliptical *there*-existential analysis seems to be the best analysis for these negatives.

I now turn to the remaining cases summarized in Table 5.

Examples (37) and (38) represent the kinds of utterances categorized as imperative benefactives. Each example is felicitous with a *for me* tag but awkward with an elliptical *there*-existential denial paraphrase.

Imperative Benefactives

- (37) Nathaniel: *No apple.*
 (No apple for me)
 Mother: No apple?
 Father: Here, I'll take the apple.
 (Nathaniel, 2;5)
- (38) Eve: *No soup* (pushing soup away).
 (No soup for me)
 Mother: Why don't you leave it right there?
 Eve: No soup.
 (Eve, 1;11)

Of the remaining 24 cases (14% of the total), 5 are unacceptable and are analyzed as counterexamples to the DP analysis. (39) and (40) are representative.

Response to Yes or No Question

- (39) Adam: What dat?
 Richard: Looks like a square. Is it a square?
 Adam: *No square*, is clown.
 (*That's no square. That's a clown)
 (Adam, 2;8)

Recapitulatory Question

- (40) Mother: It's called peanut butter without peanuts.
 Nathaniel: Why?
 Mother: No peanuts in it.
 Nathaniel: *Why no peanuts in it?*
 (Why (are there) no peanuts in it?)
 (Nathaniel, 3;0)

Adam's negation in (39) seems to require a subject and verb. The source of the problem in (40) seems to be the use of the complex DP. Elliptical *why* questions with DPs are grammatical in colloquial English in restricted environments, for example, A: *I told Nathaniel not to give the elephants peanuts.*; B: *Why no peanuts? Elephants love peanuts!* However, if the DP is complex, ellipsis is ungrammatical, for example, A: *I told Nathaniel to put my peanuts in it.*; B: **Why no peanuts in it?*

The remaining 19 cases, represented by (41) to (44), are analyzed as grammatical instances of adjacency ellipsis.

Recapitulatory Question

- (41) Lois: I just put them in there for no reason at all.
 Peter: *No reason at all?*
 [rising intonation noted by transcriber, -kfd]
 (For no reason at all you put them in there?)
 (Peter, 2;0)

Confirmatory Denial

- (42) Mother: Better get off the couch, Dingo.
 That's no place for a car.
 Nat: Better. *No place for a car.*
 (That's no place for a car)
 Mother: No place for a car.
 (Nathaniel, 2;6)

Response to Yes or No Question

- (43) Mother: Nomi, which baby has no clothes on?
 Naomi: *No clothes on.*
 (That baby [deictic gesture] has no clothes on)
 Mother: Yes, that's the right baby. That has no clothes on.
 (Naomi, 1;10)

Exclamative

- (44) Peter: THIS is the green one.
 Patsy: No.
 Peter: *No way*, where's the GREEN one.
 Patsy: I think it's in the bag.
 (Peter, 2;4)

Example (41) is easily recognizable as an acceptable recapitulatory question. In (42), Nathaniel appears to be confirming his mother's directive by echoing it, an analysis supported by the mother's subsequent use of the same negative. Naomi's *No clothes on* in (43) is felicitous if accompanied by some gesture toward the doll with no clothes. I interpret the mother's final remarks as evidence that Naomi has indeed made a deictic gesture to the "right" baby. In (44), Peter is clearly using *no way* as an exclamative, although it is difficult to determine what exactly he is objecting to from available context.

If we analyze the 8 bare *no* DPs that could not be assigned a function as counterexamples to the DP analysis and add to these the 5 ungrammatical examples represented by (39) and (40), we obtain a total of 13 counterexamples to the analysis (or 8% of the total number [169] of bare *no* DPs).

5.4. Summary

In this section, I presented a new method for analyzing children's bare *no* DPs. The new method revealed that, in the vast majority of cases, there is no difference in how children and adults used these DPs in discourse. This analysis suggests that children are using the same principles of discourse ellipsis when they produce bare DPs as adults do when they produce these DPs in colloquial English. These results provide strong evidence for both the Continuity Assumption and the DP analysis.

6. THE INPUT HYPOTHESIS

A third way of testing whether the DP analysis is correct is to compare DP production in the children's language and in the input. Children model their language on the language spoken around them. If the DP analysis is correct, one would expect how *no* DPs were used in the input to have an effect on how the children used their *no* DPs. I call this the *Input Hypothesis*.

One salient property of the input likely to have had an effect on the children's language production is frequency of use. An input frequency effect might have been realized in the children's speech in a number of ways. One might expect the relative frequency of DPs in the child and input data to be correlated by position. For example, if DPs had occurred relatively more often in bare position than in other positions in the input, one should find the same pattern in the children's speech as well. One might also expect the relative frequency of occurrence of a DP in a particular position in the input to be positively correlated with the relative frequency of DPs in that position in the children's speech. For example, the children who heard relatively more instances of a DP in bare position may have produced relatively more DPs in bare position in their own speech than the children who heard relatively fewer instances of DPs in bare position. Input frequency also may have had a more local effect. It may have been the case that the frequency of DPs in a particular position to express a particular discourse function in the input affected how often the children used a DP in that position to express that particular discourse function. For example, the children who heard relatively more bare DP existential denials in the input may have produced relatively more bare DP existential denials in their own speech than those children who heard relatively fewer bare DP existential denials in the input. Similar predictions hold when DPs are compared by DP type rather than DP position.

6.1. Testing the Input Hypothesis

To test the Input Hypothesis, the relative frequencies of negative DPs in the children's speech and in the inputs were compared according to DP type (*no* + CN, *no* + more, *no* + ADJ + CN) and syntactic position (relational clause, copular predi-

cate, and bare). Input frequency values were computed by collecting together all of the *no* DPs from the speech of all of the speakers other than the child in each set of transcripts.

The data used in these analyses are given in Table 8. DPs like *no one* and constructions like *No what?* that appeared in the input but not in the child data were put into the *other* categories in this table and were left out of the analyses.

Looking first at DP type, Table 8 shows that all three DP types occurred in the speech of 8 of the 10 children. Across these 8 children, DPs occurred in the *no* + CN DP type most often ($M = 59\%$) and in the *no* + ADJ + CN type ($M = 24\%$) more often than in the *no* + more type ($M = 16\%$). The same pattern was found for the inputs to these 8 children; *no* + CN type, $M = 60\%$; *no* + ADJ + CN type, $M = 21\%$; *no* + more type, $M = 16\%$. Moreover, the relative ordering of the three DP types by frequency was identical for 5 of the 8 child-input pairs. This is a much higher proportion of identical orderings than expected by chance and suggests that the DP type frequencies in child and input speech are related.

Correlational analyses were performed to compare the relative frequency of each DP type in the children's speech and in the input. These analyses were restricted to the data for the 8 children who used at least one DP in all three DP types. The results revealed that the children who heard relatively more [*no* CN] DPs in the input produced *no* + CN DPs relatively more often than the children who heard relatively fewer *no* + CN DPs, $r(8) = .77, p < .05$. Also, the children who heard relatively more *no* + ADJ + CN DPs in the input produced *no* + ADJ + CN DPs relatively more often than children who heard relatively fewer *no* + ADJ + CN DPs, $r(8) = .89, p < .01$. No significant correlation was found between relative frequency of *no* + more DPs in the children's speech and in the inputs, $r(8) = .23, p > .05$.

The next set of analyses looked at the DPs with respect to syntactic position. Table 8 shows that negative DPs occurred in all three syntactic positions in the speech of 6 of the 10 children. These DPs occurred most often in bare position in the speech of these children ($M = 66\%$) and more often in copular predicate position ($M = 23\%$) than in relational clause positions ($M = 12\%$). This pattern matched the relative frequency pattern in the inputs overall: DPs occurred most often in bare position in the six corresponding inputs ($M = 57\%$) and more often in copular predicate position ($M = 29\%$) than in relational clause positions ($M = 7\%$). However, the relative ordering was identical for only one of the six child-input pairs.

Correlational analyses were performed to compare the relative frequency of DP use by position using the data for the six children who produced at least one DP in each of the three positions. No significant correlations were found between the relative frequencies of DPs in bare, copular predicate, or relational clause positions in the children's speech and in the input: Bare position, $r(6) = .14, p > .05$; copular predicate position, $r(6) = .37, p > .05$; and relational clause positions, $r(6) = .62, p < .05$.

TABLE 8
Distribution of No DPs in Child and Input Data by DP Type and Syntactic Position

	DP Type																
	Syntactic Position						[No DP]						Totals				
	Bare		Relational Clause		Copular Predicate		Other		[No CN]		[No more]		[No ADJ CN]		Other		Totals
%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.	%	Raw No.
Abe	47.5	9	5	1	47.5	9	42.1	8	42.1	8	42.1	8	15.8	3	100	19	
Child Input	75	12	19	3	6	1	81.3	13	6.2	1	12.5	2	100	16			
Adam	84.5	27	3	1	12.5	4	68.8	22	15.6	5	15.6	5	100	32			
Child Input	37	14	8	3	45	17	52.6	20	23.7	9	10.5	4	13.2	5	100	38	
Eye	68	19	21	6	11	3	53.6	15	10.7	3	35.7	10	100	28			
Child Input	52	38	3	2	29	21	34.2	25	16.4	12	31.5	23	17.9	13	100	73	
Naomi	90	9	10	1	22	6	70	7	10	1	20	2	100	10			
Child Input	48	13	26	7	22	6	74.1	20	7.4	2	18.5	5	100	27			
Nath'l	100	18	27	13	21	10	61.1	11	11.1	2	27.8	5	100	18			
Child Input	48	23	27	13	21	10	79.2	38	8.3	4	12.5	6	100	48			

(Continued)

TABLE 8
(Continued)

		DP Type													
		Syntactic Position						DP Type							
		Relational Clause		Copular Predicate		Other		[No CN]		[No more]		[No ADJ CN]		Totals	
		Raw No.		Raw No.		Raw No.		Raw No.		Raw No.		Raw No.		Raw No.	
		%		%		%		%		%		%		%	
Nina															
Child	91	21	4.5	1	4.5	1	4.5	10	43.5	4	17.4	4	39.1	9	100
Input	60	32	4	2	34	18	2	20	37.8	8	15.1	8	45.3	24	100
Peter															
Child	67	29			33	14		25	58.1	7	16.3	7	25.6	11	100
Input	51	36	8	6	38	27	3	37	52.1	14	19.7	14	25.4	18	100
Ross															
Child	64	9	21	3	15	2		8	57.1				42.9	6	100
Input	71	24			23	8	6	19	55.9	2	2.9	1	29.4	10	100
Sarah															
Child	58	11	42	8				18	94.7				5.3	1	100
Input	46	15	21	7	30	10	3	23	69.7	4	12.1	4	15.2	5	100
Shem															
Child	39	17	18	8	45	20		34	75.6	5	11.1	5	13.3	6	100
Input	46	37	11	9	35	28	8	57	71.2	2	2.5	2	10.0	8	100

Note. DP = determiner phrase; CN = common noun; ADJ = adjective; Nath'l = Nathaniel.

I then checked if input frequency may have had a more local effect on how often the children produced DPs in the three positions. One possibility is that the relative frequency of negative *there*-existentials in the input had an effect on the relative frequency of *no* DPs in copular predicate position in the children’s speech. On one hand, one would expect those children who heard relatively more *no* DPs in copular predicate position to have produced *no* DPs in copular predicate position relatively more often than those children who heard relatively fewer instances of such DPs. However, in section 5, I argued that bare *no* DP existential denials and imperative prohibitions occur in both child and adult colloquial English as elliptical negative *there*-existentials. If this analysis is correct, then the relative frequency of elliptical negative *there*-existentials in the input should also have had a noticeable effect on the relative frequency of bare *no* DP existential denials and imperative prohibitions in the children’s speech.

To test these predictions, I compared the relative frequencies of *no* DPs in copular predicate position and bare position in the child and input data, considering only those bare DPs used to express either existential denial or imperative prohibition and only those copular predicate DPs in negative *there*-existentials. These values are given in Table 9.

Correlational analyses were again performed using the data for those six children who produced at least one DP in each of the three syntactic positions. A nearly significant correlation was found between the relative frequency of bare

TABLE 9
Distribution of *No* DPs in Copular Predicate and Bare Position in the Child and Input Data

	<i>DP Position</i>							
	<i>Children’s Speech</i>				<i>Input Speech</i>			
	<i>Bare DP^a</i>		<i>Copular Predicate^b</i>		<i>Bare DP^a</i>		<i>Copular Predicate^b</i>	
<i>Child</i>	%	<i>Raw No.</i>	%	<i>Raw No.</i>	%	<i>Raw No.</i>	%	<i>Raw No.</i>
Abe	42	8	42	8	56	9	6	1
Adam	62	20	0	0	29	11	21	8
Eve	57	16	11	3	44	32	23	17
Naomi	50	5	0	0	33	9	22	6
Nathaniel	67	12	0	0	39	19	21	10
Nina	78	18	4	1	43	23	30	16
Peter	58	25	30	13	30	22	32	23
Ross	29	4	14	2	38	13	15	5
Sarah	26	5	0	0	33	11	12	4
Shem	32	14	39	17	33	26	33	26

Note. DP = determiner phrase.

^aOnly existential denials and imperative prohibitions considered. ^bOnly DPs from *there*-existential sentences considered.

DP existential denials and imperative prohibitions in the children's speech and the relative frequency of *no* DPs in *there*-existential copular predicate position in the input, $r(6) = .77, p < .08$.

To investigate further, I ran a similar set of analyses using the data from all 10 children. The four remaining children were included under the assumption that they produced *no* DPs in copular predicate position but simply did not do so during the recording sessions. This assumption was easily justified in Adam's case because Adam did produce *no* DPs in copular clauses other than *there*-existentials, for example, *That's no Mommy*. Although the other 3 children did not produce *no* DPs in copular predicate position, the transcripts showed that all 3 children did produce affirmative *there*-existential sentences.

The results of these tests support the Input Hypothesis. First, a significant correlation was found between the relative frequency of bare DP existential denials and imperative prohibitions in the child data and the relative frequency of *no* DPs in *there*-existential copula predicate position in the input, $r(10) = .70, p < .05$. The children who heard relatively more *no* DPs in *there*-existential copular predicate position produced bare DP existential denials and imperative prohibitions relatively more often than those children who heard relatively fewer *no* DPs in *there*-existential copular predicate position. Second, a significant correlation was found between the relative frequency of *no* DPs in *there*-existential copular predicate position in the child and input data, $r(10) = .68, p < .05$. The children who heard relatively more *no* DPs in *there*-existential copular predicate position produced such DPs relatively more often than the children who heard relatively fewer of them.

No correlations were found between the relative frequencies of bare *no* DP existential denials and imperative prohibitions in the child data and in the input. I attribute this result to the functional ambiguity of bare *no* DPs in the input. Bare *no* DPs can be used to express at least as many functions as those given in Table 5. On the other hand, *no* DP subjects in the *there*-existentials were explicitly used to assert only existential denial and imperative prohibition. It is no surprise that the children's use of bare DP existential denials and imperative prohibitions are correlated with these constructions.

6.2. Summary

A statistical comparison of the relative frequencies of *no* DPs in the child and input data supports the Input Hypothesis. Overall, *no* + CN DPs occurred more often than *no* + ADJ + CN DPs and *no* + ADJ + CN DPs more often than *no* + more DPs in both the input and in the children's speech. Furthermore, those children who heard relatively more *no* + CN DPs and *no* + ADJ + CN DPs produced DPs in those types relatively more often than those children who heard relatively fewer *no* + CN DPs and *no* + ADJ + CN DPs. This suggests that the children were using the *no* DP types in the input as a model for their own *no* DPs.

The relative frequency of *no* DPs in the input and in the children's speech were also found to be related by position. In both the input and the children's speech, *no*

DPs occurred most often in bare position, less often in copular predicate position, and least often in relational clause positions. Furthermore, the children who heard relatively more *no* DPs in *there*-existential copular predicate position produced bare *no* DP existential denials and imperative prohibitions and *no* DPs in *there*-existential copular predicate position relatively more often than those children who heard relatively fewer instances of such DPs. This suggests that the children were using their bare *no* DP existential denials and imperative prohibitions as elliptical *there*-existentials, as expected under the DP analysis.

7. SUMMARY AND DISCUSSION

The aforementioned findings show that children productively use *no* in their spontaneous speech like adults. The children included in the study correctly assembled DPs by combining the determiner *no* with a variety of nominal complements (*no* DPs). The children produced these DPs correctly as subjects, objects, and nominal predicates. The children also used bare *no* DPs, as adults do in colloquial English, correctly to express a variety of functions across discourse contexts including existential denial, confirmatory denial, and imperative prohibition. Finally, the relative frequencies of *no* DPs in the children's speech and in the input were positively correlated by DP type and DP position, suggesting that the children were using the input as a model for their own uses of *no* DPs.

Generally, one should be extremely cautious when drawing conclusions about children's grammatical or pragmatic knowledge from analyses of very early spontaneous speech data, particularly from analyses that are restricted to a particular item. Spontaneous speech transcripts provide only limited amounts of information about context of utterance, making it difficult at best to identify what a child may have intended to express in using an utterance. Moreover, although the systematic use of a particular item like *no* may strongly suggest its acquisition, the acquisition of any particular item does not necessarily imply the acquisition of the category the item belongs to in adult grammar (Radford (1990, 101)) or the acquisition of the relevant discourse principles that regulate the use of the item in colloquial registers. Further exploration of DP use in early child English and other child languages is needed before a definitive conclusion can be drawn about children's knowledge of determiners and DP structure. With these provisos in mind, I briefly discuss three issues that immediately arise given the findings presented in this article.

7.1. The Sentence Operator Analysis

One issue is whether the Sentence Operator analysis remains a practical analysis of child English *no*. This analysis was initially called into question because it predicts that children and adults represent and analyze *no*, and the constructions it oc-

curs in, in fundamentally different ways. One important contribution of the DP analysis is that it provides an intuitively plausible alternative to the Sentence Operator analysis. The findings reported in this study show that children use *no* constructions, in most instances, no differently than adults. This suggests that the Sentential Operator analysis is untenable as a general analysis of child English *no*.

One might still argue that the Sentence Operator analysis is the appropriate one for children's external and internal clausal negations with *no*. For example, one might argue that *no* in sentences like *No the sun shining* and *I no know* occur either in Neg° or [Spec, NegP]. Although this view is typically assumed (e.g., Deprez and Pierce (1993)), there is little evidence for it. I argued elsewhere (Drozd (1995, 2001)) that external clause negation with *no* (as in *No Mommy do it*) expresses metalinguistic exclamative negation (*No way Mommy do it*) and is unlikely to be an early ungrammatical version of truth-functional internal clause negation (*Mommy doesn't do/is not doing it*). Under this analysis, the *no* in external clause negation in child English is analyzed either as or associated with an illocutionary force operator in a complementizer phrase (CP) and has no connection to *no*, *not*, and *don't* in internal truth-functional clause negation (Drozd 2001)). If the metalinguistic negation analysis is correct, the Sentence Operator analysis and the NegP analysis in particular cannot be the correct analysis of children's external clause negation. One interesting question is whether a NegP analysis is the correct analysis for children's internal clause negation with *no*, as assumed by Deprez and Pierce (1993) and Harris and Wexler (1996). Unfortunately, this question cannot be investigated here. I leave the matter for further research.

7.2. Determiners in Early Child English

A second issue concerns the status of the determiner category in early child English. How likely is it that children represent *no* as a determiner in abstract syntax? How likely is it that very young children have knowledge of the determiner category?

One piece of evidence in support of the view that young children do have the requisite categorial knowledge is the productive use of determiners other than *no* in early child English. For example, Valian (1986, 566, 575) reported that her 6 participants (age range 24–29 months) correctly used a variety of determiners in their spontaneous speech, including the definite and indefinite articles *the* and *a* (see also Brown (1973), de Villiers and de Villiers (1979)), *my*, the demonstratives *this* and *that*, and much less often, *one*, *two*, *four*, *some*, *several*, *another*, *a big bunch of*, *a piece of*, *a few*, *some*, and *lots*. *No* also occurred in determiner position in Valian's data, although rarely (.2% of all determiner tokens). Valian reported that the children's determiners exhibited the distributional and combinatorial properties expected of determiners in adult English. In a more recent study, Bloom and Wynn (1997) reported that children well below 2 years of age obey the distributive and combinatorial restrictions on the use of quantificational determin-

ers such as *another*, *both*, *most*, *much*, *more*, and *all*. The systematic and correct use of determiners reported in these studies indicates that the determiner category is present in early child English (see Bohnacker (1997) for additional evidence).

Other studies have shown that young children are also good at using the presence or absence of a determiner systematically as a distributional cue for distinguishing noun types. Children younger than 2 years can use the presence and absence of the indefinite article to distinguish proper names from common nouns (Katz, Baker, and Macnamara (1974)) and to distinguish count and mass nouns (Gordon (1988)). Children also grasp number agreement involving determiners within DP at an early age. For example, children have little difficulty using indefinite determiners like *a*, *one*, and *another* correctly in singular contexts and *more* and *some* correctly in plural contexts (Gordon (1982)). The claim that the determiner category is available to young children, and more specifically that children represent *no* as a determiner, is entirely consistent with these results.

One might still object that, although the determiner analysis is consistent with early child language, it may not be the right analysis of children's earliest uses of *no* in determiner position. It is well known that determiners are often missing in obligatory contexts in early child English (e.g., Brown (1973)). This fact is typically cited as evidence for the widely held view that the determiner category is either absent or underspecified in early child English (Hoekstra & Hyams (1998), Hyams (1996), Lebeaux (1988), Radford (1990)). For example, Radford proposed that the determiner category, as well as other functional categories, emerge in child English only around 24 months according to a genetically determined maturational schedule. Determiners that occur in child English before this age are analyzed as "impostors"—rote learned, nonproductive forms that are lexical rather than functional items. This view poses a challenge to the DP analysis because many of the *no* tokens used in the present study were culled from the earliest transcripts of Eve, Naomi, Nina, and Peter, who were younger than 24 months of age when their speech was first recorded.

Radford (1990) has been criticized for providing no quantitative data to support his claims about determiners in child English and for ignoring the systematic use of determiners by very young children learning English and other languages (see Bohnacker (1997) for a recent discussion). However, there are reasons for believing that *no* in particular is a legitimate exception to Radford's (1990) proposal. The findings reported in this article show that *no* combines with a diverse range of nominal complements (Tables 3 and 4), a feature that according to Radford (1990, 101) reflects the acquisition of the determiner system. In addition, *no* doesn't exhibit the features that Radford claimed lead to the delayed acquisition of the determiner category. According to Radford (1990) determiners like the articles *a* and *the* are relatively difficult to learn because they are typically unstressed, are morphophonologically nonuniform (e.g., *a* may surface as /eɪ/, /ə/, or /æn/), and have semantically abstract (i.e., grammatical) rather than concrete (i.e., lexical) meanings. In addition, the indefinite article is subject to complex syntac-

tic restrictions (combines with singular count but not plural count or singular noncount nouns). Determiner *no*, in comparison, typically receives stress, is morphophonologically uniform, and places no morphosyntactic restrictions on its nominal complement. Furthermore, children learning English and other languages use negation consistently to express a variety of meanings (Bloom (1970), Choi (1988)) including what I have called existential denial and imperative prohibition. This suggests that at least some abstract concepts associated with determiner meanings are easily grasped and integrated into the linguistic semantic system at a very early age.

Second, *no* is unlikely to be omitted by children. Unlike the articles, which are typically cited in studies of determiner omission, the meaning conveyed by determiner *no* is not recoverable from discourse context even with support from deictic gesturing or pragmatic inference. Unsurprisingly, there are no reports of the (systematic) omission of *no* in child English negatives. The fact that determiner *no* typically receives stress also excludes *no* as a target for deletion under Gerken's (1991) metrical account. Gerken argued that children omit articles when they occur as weak syllables in iambic (weak–strong) metrical feet. However, *no* as a stressed syllable never occurs in this prosodic position.

Finally, *no* is unlikely to occur as an impostor in early child English, as Radford (1990) would claim. If *no* in determiner position were a nonproductive form in child English, we would not expect to have found children's bare *no* DPs exhibiting the discourse functional variation discussed previously.

7.3. Discourse Ellipsis and Root Infinitives

A third issue concerns the proper interpretation of elliptical expressions like bare DPs in child language. One important advantage of the discourse ellipsis analysis over previous functional analyses of elliptical negation is that it provides a principled method for relating children's elliptical negatives to their propositional meanings. A standard practice in child negation research is to categorize children's sentential and elliptical negative utterances on the basis of general definitions of semantic functions (e.g., Bloom (1970), Choi (1988)). One problem with this practice is that it puts few restrictions on how elliptical negatives should be related to their underlying propositional forms. Moreover, this practice allows the possibility that children and adults utilize different principles for relating elliptical negatives with their propositional meanings. Under the discourse ellipsis analysis, the bare DPs of both children and adults are related to their underlying propositional forms in the same way (see section 5). Another important benefit of the analysis is that it raises the interesting possibility that other patterns of elliptical or nonsentential utterances in child language may and should be analyzed as a reflection of grammatical (PF) principles.

One immediate question raised by the findings is whether young children actually do grasp the PF deletion rules that determine the form of bare *no* DPs as well

as the pragmatic principles that constrain how such elliptical expressions are matched with discourse contexts in colloquial English, as the findings seem to suggest. An intuitive alternative view likely to find favor among researchers is that the children's elliptical *no* constructions, and the bare *no* DPs in particular, reflect limited processing resources or the maturation of grammatical or pragmatic principles, or both, rather than an adultlike knowledge of PF principles. One formal analysis consistent with this view is that children's elliptical *no* constructions are root infinitives. Root infinitives are main clauses with nonfinite lexical verb forms (e.g., *Mommy eat cookie*) or missing auxiliaries (e.g., *That Mommy* (<*That is Mommy*)) that occur in the spontaneous speech of children roughly between 18 and 36 months of age. A widely held view is that root infinitives in child language reflect the absence or underspecification of inflectional phrase (IP) features or structures (Avrutin (1999), Hoekstra and Hyams (1998), see Lasser (1997) for a recent overview, Weissenborn (1994), Wexler (1995, 1998)). In one account, Hoekstra and Hyams proposed that root infinitives arise from the optional underspecification of tense in a child's IP system. Following Guéron and Hoekstra (1995), Hoekstra and Hyams assumed that temporal finiteness is fixed by means of a tense chain relating a speech time temporal operator (TO_i) in [Spec CP], a pronominal variable tense (TNS) in I^o, and a verb (Guéron and Hoekstra (1995, 79), Hyams (1996, 106)). In this system, present tense reflects the coindexation of TO_i, TNS, and the matrix verb, as shown in (45). Past tense is established when TO_i is conindexated with TNS and the verb, as in (46).

(45) [TO_i] John [TNS⁰_i] knows_i the answer

(46) [TO_i] John [TNS⁰_j] knew_j the answer

Hoekstra and Hyams proposed that root infinitives in child English arise when the tense variable occurs without an index, as in (47).

(47) [TO_i] Baby doll [TNS⁰] cry.

This analysis extends straightforwardly to the children's elliptical existential denials, which would receive an analysis like (48).

(48) (There) no water in here.
[TO_i] (There) [TNS⁰] no water in here.

Under this analysis, the absence of the copular verb *be* and the optional use of expletive subjects like *there* are both attributable to the underspecification of TNS. *Be* is analyzed as an expletive verb inserted into a syntactic derivation only to check I-(tense and agreement) features. If TNS does not bear an index, I-features are not realized, and the copula is omitted (Hyams (1996, 101); but see also Rizzi (1993/1994) and Wexler (1994) for similar explanations). Further-

more, when I-features are underspecified, verbal agreement is assumed to be unmarked in IP. This allows pronominal subjects like *there* to be optionally absent in [Spec, IP] without creating a Spec-Head agreement violation (Hoekstra and Hyams (1998, 100)).

The root infinitive analysis in (48) is attractive for several reasons. First, it correctly predicts the occurrence of both bare DP situational ellipsis and copulaless *there*-existentials like *There no more* in the primary data. Here, the root infinitive analysis has a clear advantage over the situational ellipsis analysis because the latter predicts that existentials like *there no more* should never occur. Second, it helps to bring the *no* DP results in line with other recent analyses of sentence negation in child English. In a recent study, Harris and Wexler (1996) conducted an analysis of sentence negation corpora from 10 children (age range 1;6–4;1), including data from 9 of the 10 children used in this study. They reported that 93% of the internal and external clausal negations in which either *no* or *not* appeared as the negative operator occurred with nonfinite verbs (Harris and Wexler (1996, 21, Table 11)). This finding is entirely expected under the root infinitive analysis of elliptical existential denials. Third, root infinitives and the children's bare *no* DPs seem to have similar interpretations. Root infinitives in English are often characterized as having future or nonrealized event interpretations (Avrutin (1999), Hoekstra and Hyams (1998)), or deictic "here and now" interpretations (Hyams (1996)). Generally speaking, these descriptions are consistent with the range of discourse functions listed for bare *no* DPs in Table 5 and implied in examples like (33) to (44).

However, despite its attractiveness, the root infinitive analysis may not be the best analysis for children's *no* constructions. First, the children's bare DP existential denials and imperative prohibitions, which make up the largest class of *no* constructions in the children's speech, continue to occur productively beyond the root infinitive stage. The data used in this study were culled from transcripts recorded when the children were older than 36 months (see Table 1), the upper age boundary for the root infinitive stage. Of these nine children, six (Abe, Adam, Naomi, Nina, Peter, and Sarah) continued to use bare DP negatives correctly at least up to and including 40 months, the age at which the latest transcript used in the study was recorded. Because bare *no* DPs are used productively in colloquial English, it is reasonable to presume that children continue to use bare *no* DPs themselves beyond 40 months. However, this is inconsistent with the root infinitive analysis.

Second, the children exhibited no general tendency to expand their bare *no* DPs as full sentential negatives after 36 months. If the children analyzed their bare DPs as root infinitives, one would have expected the relative proportion of *no* DPs in full sentences to rise and the relative proportion of bare *no* DPs to fall after 36 months. However, a longitudinal analysis of the children's data revealed that the data from only three of the nine children (Peter, Sarah, and Shem) suggest this longitudinal pattern.

Third, the root infinitive analysis seems to make wrong predictions about ellipsis other than situational ellipsis in the children's speech. Reconsider Nathaniel's *no apple* in (37) and Eve's *no soup* in (38). Under Bloom's analysis, these negatives would be analyzed as elliptical versions of full sentences with lexical main verbs, such as *I don't want an apple* and *I don't want soup*. Under the functional analysis presented in section 5.2, they would be categorized as idiomatic benefactives with hidden predicates, such as *get no soup for me* and *get no apple for me*. Under either analysis, if these negatives were root infinitives, one would have expected the missing lexical verbs to occur in nonfinite form. The root infinitive analysis has no explanation for why the lexical verbs in these negatives are missing. One might argue that no lexical verb shows up under the imperative benefactive analysis because the negative is "frozen" as an idiomatic expression. However, if these are indeed idiomatic expressions, they are not root infinitives.

The root infinitive analysis also seems to make a wrong prediction about the distribution of bare *no* DPs in child English. In adult English root infinitives occur only in highly specific nonstandard registers such as *Mad Magazine* sentences (Avrutin (1999), Rizzi (1993/1994)). Children, in contrast, typically use root infinitives where finite declarative sentences are appropriate, suggesting that children lack a pragmatic principle responsible for the restricted use of root infinitives (Avrutin (1999)). In contrast, the children included in this study appear to use bare *no* DPs correctly across a wide variety of discourse contexts to express declarative, interrogative, and imperative functions. This finding is unexpected under the root infinitive account but entirely consistent with the situational ellipsis account.

Further comparison of these two accounts is beyond the scope of this article. However, one hypothesis that may help to reconcile the two accounts is that child English elliptical negation has at least two sources. Under this hypothesis, bare DPs like *no ice cream*, as I have claimed, reflect children's knowledge of situational ellipsis. There seem to be few if any other reasonable explanations for why children use bare DPs consistently like adults during and after the root infinitive period. However, copulaless *there*-existentials are to be considered genuine instances of root infinitives, which eventually disappear from child English. I leave the investigation of this option for further research.

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