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The development of determiner use in young children: evidence from the Howe Corpus

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Abstract

The present study investigates whether children's early determiner use reflects emerging abstract grammatical categories or item-specific patterns. Using naturalistic longitudinal speech data from the Howe Corpus, which includes 16 British English-speaking mother-child dyads recorded at two time points, the study examines determiner overlap in two nominal environments: simple determiner+noun sequences and adjective-modified determiner+adjective+noun sequences. Determiner overlap refers to the use of more than one determiner type with the same noun, such as a dog and the dog. Three analyses were conducted: an overlap analysis of simple noun phrases, an overlap analysis of adjective-modified noun phrases, and an exploratory control analysis examining whether children's overlap in simple phrases was associated with MLU, noun type counts, or determiner type counts. The results show that children's overlap in simple noun phrases was low at Time 1 (2.91%) but increased by Time 2 (12.06%), approaching maternal levels (14.69%). In contrast, children produced no overlap in adjective-modified noun phrases, whereas mothers showed limited but increasing overlap in this structurally more complex environment. The control analysis provided no clear evidence that children's simple-phrase overlap was explained solely by MLU, noun diversity, or determiner diversity. These findings suggest that early determiner productivity is neither uniformly abstract nor entirely item-based. Rather, abstraction appears to emerge gradually and may remain construction-bound, appearing first in simpler nominal frames before extending to structurally more demanding contexts.

Keywords: child language acquisition; determiner acquisition; syntactic categories; determiner overlap; Howe Corpus; construction-bound abstraction

1. Introduction

A central debate in child language acquisition concerns the nature of early grammatical knowledge: do children possess abstract grammatical categories from the outset, or do these categories emerge gradually from item-

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based learning? Nativist approaches posit that children have access to abstract linguistic categories that guide early grammatical development and allow them to generalize beyond specific input tokens (Abney, 1987; Chomsky, 1993; Akhtar, 2004; Yang, 2016). In contrast, constructivist or usage-based accounts maintain that children's early grammatical knowledge is initially tied to item-specific schemas and high-frequency lexical frames, with abstraction emerging gradually through distributional learning, analogy, and accumulated experience (Pine & Lieven, 1997; Tomasello, 2003; Ambridge & Lieven, 2011).

Determiner acquisition provides a useful testing ground for this debate. Determiners are frequent in adult input, emerge early in child speech, and are constrained by syntactic position. If children possess an abstract determiner category early in development, they should be able to use different determiner forms productively with the same nominal environment. If early determiner use is primarily item-specific, children's productions should remain tied to fixed combinations, such as "a + particular noun" or "the + particular noun", with little evidence of substitution across determiner types (Valian, 1986; Pine & Martindale, 1996).

One influential empirical diagnostic proposed in the literature is *determiner overlap*, a measure referring to whether a single noun occurs with more than one determiner type in a child's speech (Valian, Solt, & Stewart, 2009). For example, if a child produces both a dog and the dog in different utterances, the noun dog is counted as showing overlap. The overlap percentage is calculated as the number of noun types that occur with more than one determiner divided by the number of noun types that occur with at least one determiner. This measure does not directly prove abstract grammatical competence, but it provides an empirical proxy for category-level flexibility in spontaneous speech.

Empirical findings on determiner overlap have led to different interpretations. Valian et al. (2009) argued that children's use of multiple determiners with the same nouns supports early abstract determiner categories. In contrast, other researchers suggest that apparent productivity may be an artifact of high-frequency lexical frames and that genuine abstraction emerges only later in development (Pine & Lieven, 1997; Pine & Martindale, 1996). These positions are often presented as competing accounts, yet they may not be mutually exclusive. Early grammatical abstraction may be sensitive to the complexity of the syntactic frame in which a category is used.

Cross-linguistic evidence also cautions against treating determiner acquisition as a uniform, language-independent process. Languages differ substantially in how definiteness, specificity, and referentiality are morphosyntactically encoded. For example, Turkish lacks a definite article system comparable to English and instead relies on case marking and discourse context, raising questions about how determiner-like meanings are acquired in the absence of overt articles (Öztürk & Papafragou, 2016). Similarly, Russian expresses genericity and definiteness through a combination of word order, aspect, and contextual cues rather than articles, challenging strong claims of universal early determiner categories (Ionin, Zubizarreta, & Philippov, 2009). Research on bilingual and second-language

learners further demonstrates that article acquisition is sensitive to both input properties and the morphosyntactic resources of the learner's first language (Chondrogianni, Vasić, Marinis, & Blom , 2015; Stahnke, 2022). These cross-linguistic findings suggest that early grammatical development may involve an interaction between domain-general learning mechanisms, language-specific input, and maturational constraints, rather than a uniform, language-independent emergence of functional categories. From this perspective, examining determiner use in a single language remains valuable, provided that the analysis carefully considers structural complexity, developmental stage, and input characteristics.

A specific gap in previous overlap-based research is that it has focused mainly on simple nominal strings, especially determiner+noun sequences. Less attention has been paid to whether determiner productivity extends to structurally more complex nominal environments. Adjective-modified noun phrases provide a useful context for this question because an adjective canonically intervenes between the determiner and the noun in English. If children's determiner category is already broadly abstract, overlap should be observable not only in simple noun phrases but also in determiner+adjective+noun constructions. If abstraction is constrained by processing demands or constructional familiarity, overlap may appear in simple contexts but remain absent in more complex ones.

The present study addresses this gap by examining determiner use in the Howe Corpus, a longitudinal corpus of British English-speaking children and their mothers (Howe, 1981). Building on previous overlap-based approaches, the study compares children's and mothers' determiner overlap across two structural contexts: simple determiner+noun phrases and adjective-modified determiner+adjective+noun phrases. In addition, it examines whether overlap patterns can be explained by potential confounds such as children's MLU, noun type frequency, and determiner type diversity.

The study is guided by three research questions:

(1) Do children show increasing determiner overlap in simple determiner+noun sequences across development, and how do their patterns compare with those of their mothers?

(2) Does determiner overlap extend to adjective-modified determiner+adjective+noun sequences?

(3) Are overlap patterns in children's speech associated with MLU, noun type counts, or determiner type counts?

By addressing these questions, the study aims to refine the binary opposition between early abstraction and item-based learning and to explore the possibility that early grammatical abstraction is construction-bound.

2. Methodology

2.1. Data collection

Data were drawn from the Howe Corpus (Howe, 1981), which consists of naturalistic, audiotaped interactions between 16 British English-speaking children and their mothers. The dataset includes two longitudinal time points:

Time 1 (age 1;6 to 1;8) and Time 2 (age 1;11 to 2;1). Children were grouped by Mean Length of Utterance (MLU) to account for grammatical development stages (see Appendix 1).

2.2. Data processing

Speech data were processed with CHILDES tools (MacWhinney, 2000). Target sequences were extracted from the transcribed corpus and then manually verified. Two structural environments were examined: **"Determiner+Noun"** sequences and **"Determiner+Adjective+Noun"** sequences. Automatic extraction was used to identify candidate strings, after which the first author checked the output manually to correct tagging errors, exclude non-target strings, and remove cases in which CHILDES had assigned an inappropriate part-of-speech tag.

Determiner types included forms tagged and manually verified as determiners in the relevant nominal contexts. These included articles such as a, an, and the; demonstratives such as this and that; possessive determiners such as my and your; and quantificational determiners such as some and all when they functioned determinatively. Noun types refer to distinct noun lexical types that occurred with at least one determiner in the target structure. Thus, Det types refers to the number of distinct determiner forms, while N types refers to the number of distinct nouns in the relevant environment.

The core measure was Determiner Overlap Percentage. For each speaker, the numerator was the number of noun types that occurred with more than one determiner type, and the denominator was the number of noun types that occurred with at least one determiner. The formula was: (number of noun types occurring with more than one determiner type / number of noun types occurring with at least one determiner) x 100. For example, if a speaker produced both a dog and the dog in different utterances, the noun dog contributed to the numerator. The measure was interpreted as an indicator of distributional flexibility and syntactic productivity rather than as direct proof of abstract competence.

Manual verification was necessary because automatic tagging may misclassify adjectives, determiners, or non-target strings in child language data. A fully independent inter-rater reliability check was not conducted; this point is therefore treated as a methodological limitation. Immediate repetitions of maternal speech were not systematically removed from the dataset because reliable identification across the entire corpus would require a separate turn-by-turn repetition analysis. For this reason, overlap results are interpreted conservatively, especially when individual child productions may reflect repetition of recently heard input.

2.3. Data analysis

2.3.1 Analysis 1: Overlap in "Determiner+Noun" Sequences

Analysis 1 examined overlap in simple determiner+noun sequences using the full set of determiners rather than limiting the analysis to a and the. This choice follows Valian et al. (2009), whose findings indicate that considering the broader determiner category provides a more complete picture of children's determiner productivity. For each child and mother, we counted

(a) the number of distinct determiner types in the target structure, (b) the number of noun types occurring with at least one determiner, and (c) the number of noun types occurring with more than one determiner. The overlap percentage was then calculated using the numerator and denominator described above.

2.3.2 Analysis 2: Overlap in "Determiner+Adjective+Noun" Sequences

Analysis 2 applied the same overlap procedure to determiner+adjective+noun sequences. Adjective-modified noun phrases were selected because attributive adjectives canonically occur between the determiner and the noun in English, providing a structurally more complex but consistently identifiable nominal frame. Other intervening structures were not included because they would require different extraction criteria and would reduce comparability with Analysis 1.

2.3.3 Analysis 3: Control for Potential Confounds

Analysis 3 was designed as an exploratory control analysis. It examined whether children's overlap in simple determiner+noun sequences at Time 2 was associated with three possible confounding variables: MLU, the number of noun types occurring with at least one determiner, and the number of determiner types.

This control analysis was limited to Time 2 determiner+noun data because this was the only child dataset with enough non-zero overlap values for exploratory correlation. The other datasets were not used for this analysis because overlap was absent or extremely sparse, making correlation estimates uninformative.

3. Findings

3.1. Findings for Analysis 1: Determiner+Noun Sequences

To address the first research question, Analysis 1 examined determiner overlap in simple determiner+noun sequences. Before the numerical results are presented, three table labels should be clarified. All Det overlap refers to the percentage of noun types that occurred with more than one determiner type. Mean Det types refers to the average number of distinct determiner forms produced in the target structure. Mean N types refers to the average number of distinct noun types that appeared with at least one determiner. These labels are used consistently in the tables below.

The group-level results for simple determiner+noun sequences are presented in Table 1.

Table 1
Determiner overlap in "determiner+noun" sequences by MLU group

Time	Children by MLU	All Det overlap	Mean Det types	Mean N types
1	1.07-1.49 (n=10)	3.33% (0.11)	0.90	2.30
	1.55-1.93 (n=6)	2.22% (0.05)	2.50	9.33

	Total (n=16)	2.91% (0.09)	1.50	4.94
	Mothers (n=16)	9.89% (0.09)	5.75	33.38
2	1.21-1.42 (n=4)	10.00% (0.13)	2.75	8.50
	1.74-1.83 (n=5)	11.52% (0.14)	3.40	14.40
	2.00-2.42 (n=5)	13.84% (0.09)	4.40	18.40
	2.60-2.88 (n=2)	13.10% (0.02)	5.50	28.00
	Total (n=16)	12.06% (0.10)	3.81	15.88
	Mothers (n=16)	14.69% (0.07)	7.44	55.13

Note. Standard deviations are given in parentheses where available. Det = determiner; N = noun.

As shown in Table 1, children produced low overlap in simple determiner+noun sequences at Time 1. The total child overlap was 2.91%, compared with 9.89% in the mothers. At Time 2, the child mean increased to 12.06%, while the maternal mean was 14.69%. The increase in children's overlap occurred alongside increases in their mean determiner types and noun types, from 1.50 and 4.94 at Time 1 to 3.81 and 15.88 at Time 2, respectively.

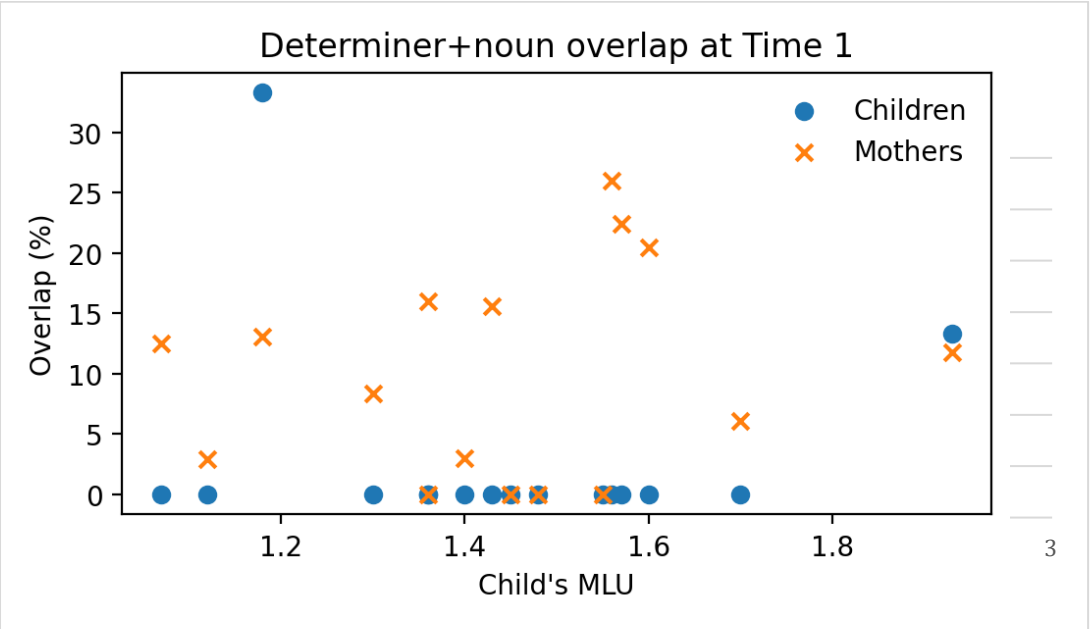

Figure 1. Overlap of all determiners in "determiner+noun" sequences for time-1 children and mothers with regard to child's MLU

Figure 1 shows the distribution of overlap at Time 1. Most children produced no overlap in this structure at the earlier recording point, whereas maternal overlap was more frequently observed. The individual data in Table 2 show that only two children, Kevin and Yvonne, showed overlap at Time 1.

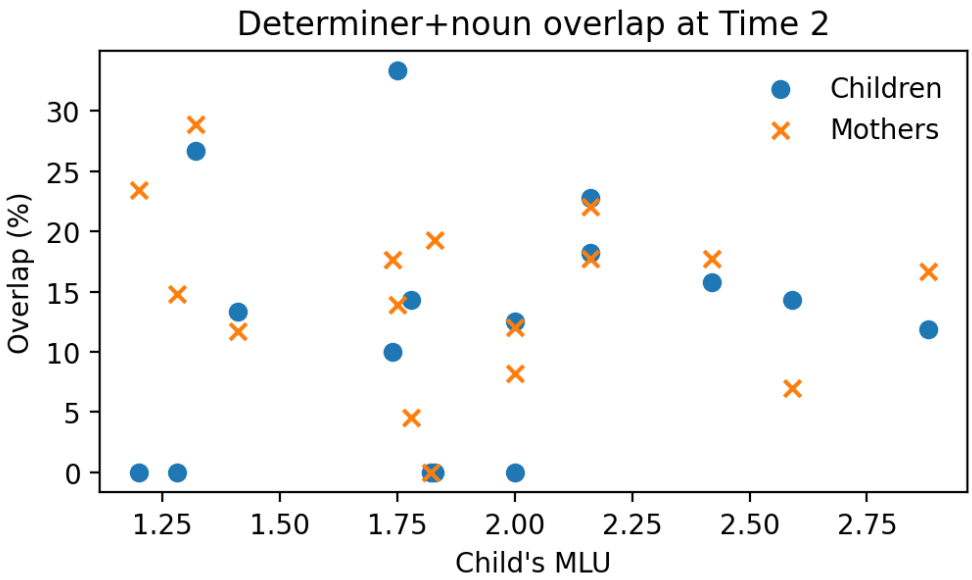

Figure 2. Overlap of all determiners in "determiner+noun" sequences for time-2 children and mothers with regard to child's MLU

Figure 2 shows that overlap was more frequent among children at Time 2 than at Time 1. However, the pattern does not justify a strict MLU-threshold interpretation. Some children below MLU 2.00 showed overlap, whereas individual variation remained visible across the MLU range. The descriptive finding is therefore that overlap increased across the two recording periods, not that it followed a simple linear relation with MLU.

Table 2
Individual children's and mothers' determiner overlap at Time 1 and Time 2

Child	**Overlap in Time 1**		**Overlap in Time 2**	
	Children (%)	Mothers (%)	Children (%)	Mothers (%)
Jason	0/0 (0)	2/16 (12.50)	0/3 (0)	8/54 (14.81)
Kevin	1/3 (33.30)	11/84 (13.10)	0/10 (0)	10/83 (12.05)
Graham	0/2 (0)	1/34 (2.90)	2/15 (13.33)	7/60 (11.67)
Lucy	0/1 (0)	1/12 (8.3)	0/1 (0)	11/47 (23.40)
Nicola	0/1 (0)	8/50 (16.00)	0/14 (0)	16/83 (19.28)
Philip	0/0 (0)	0/18 (0)	2/6 (33.3)	5/36 (13.89)
Faye	0/1 (0)	1/33 (3)	3/21 (14.29)	1/22 (4.55)
Wayne	0/11(0)	5/32 (15.6)	4/15 (26.67)	13/45 (28.89)
Richard	0/3 (0)	0/12 (0)	3/19 (15.79)	11/62 (16.13)
Melanie	0/1 (0)	0/7 (0)	0/1 (0)	0/26 (0)
Eileen	0/15 (0)	0/10 (0)	3/30 (10)	9/51 (17.65)
Sally	0/5 (0)	13/50 (26.00)	5/22 (22.73)	14/79 (17.72)
Oliver	0/2 (0)	11/49 (22.40)	6/33 (18.18)	15/68 (22.06)
Barry	0/14 (0)	9/44 (20.50)	2/14 (14.29)	3/43 (6.98)
Ian	0/5 (0)	3/49 (6.10)	1/8 (12.5)	5/61 (8.20)
Yvonne	2/15 (13.30)	4/34 (11.80)	5/42 (11.9)	10/60 (16.13)

Note. Fractions indicate the number of overlapping noun types divided by the number of noun types occurring with at least one determiner.

Table 2 confirms the group-level pattern at the individual level. At Time 1, most children had zero overlap. At Time 2, 11 of the 16 children showed some overlap in simple determiner+noun sequences. Maternal overlap was also variable across dyads, but it was generally present in both time periods.

3.2. Findings for Analysis 2: Determiner+Adjective+Noun Sequences

Analysis 2 examined whether determiner overlap extended to adjective-modified noun phrases, where an adjective intervened between the determiner and the noun. The same overlap calculation was used as in Analysis 1, but the target structure was determiner+adjective+noun rather than determiner+noun.

Table 3
Determiner overlap in "determiner+adjective+noun" sequences by MLU group

Time	Children by MLU	all Det overlap	Mean Det types	Mean N types
1	1.07-1.49 (n=10)	0.00% (0.00)	0.00 (0.00)	0.00 (0.00)
	1.55-1.93 (n=6)	0.00% (0.00)	0.17 (0.41)	0.17 (0.41)
	Total (n=16)	0.00% (0.00)	0.06 (0.25)	0.06 (0.25)
	Mothers (n=16)	1.34% (0.04)	2.00 (1.55)	4.50 (4.35)
2	1.21-1.42 (n=4)	0.00% (0.00)	0.50 (0.58)	0.50 (0.58)
	1.74-1.83 (n=5)	0.00% (0.00)	0.40 (0.55)	0.40 (0.55)
	2.00-2.42 (n=5)	0.00% (0.00)	1.40 (0.55)	1.60 (0.89)
	2.60-2.88 (n=2)	0.00% (0.00)	0.50 (0.71)	2.00 (2.83)
	Total (n=16)	0.00% (0.00)	0.75 (0.68)	1.00 (1.15)
	Mothers (n=16)	5.63% (0.08)	2.50 (0.97)	5.94 (3.19)

Note. Standard deviations are given in parentheses where available. Det = determiner; N = noun.

Table 3 shows a near-floor pattern for children in adjective-modified noun phrases. Across both time points and all MLU groups, children produced 0.00% overlap in determiner+adjective+noun sequences. This means that no noun type in the children's adjective-modified productions occurred with more than one determiner type. In contrast, mothers showed limited overlap in the same structure: 1.34% at Time 1 and 5.63% at Time 2.

The type counts in Table 3 also indicate that adjective-modified noun phrases were sparse in children's speech. At Time 1, the total child means were 0.06 determiner types and 0.06 noun types. At Time 2, these increased to 0.75 determiner types and 1.00 noun types, but they remained well below the corresponding maternal means of 2.50 determiner types and 5.94 noun types at Time 2.

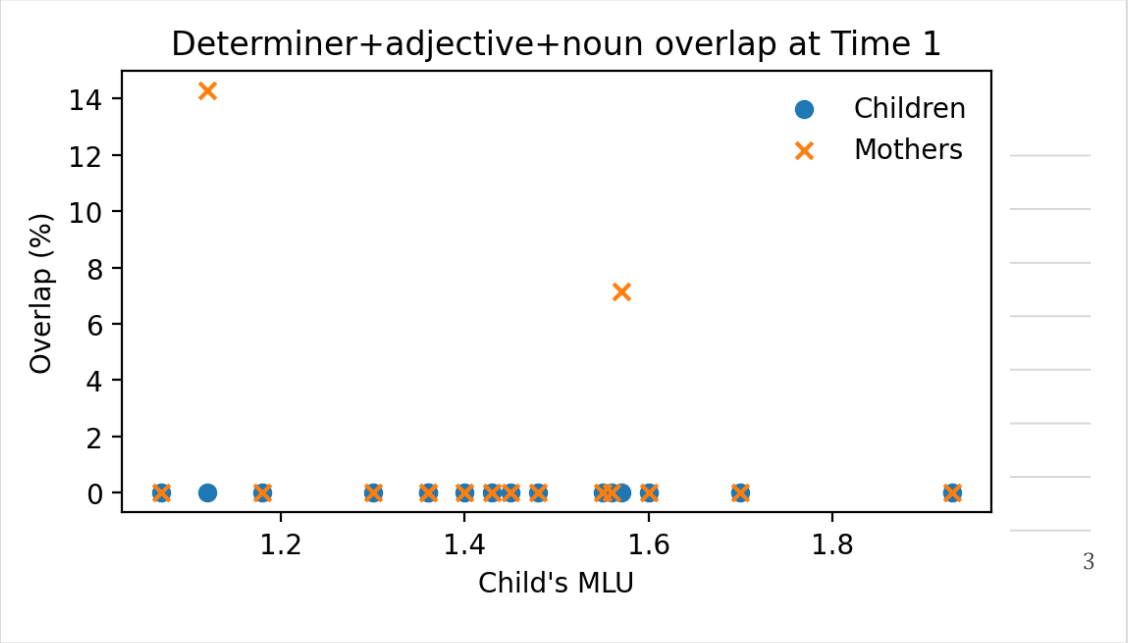

Figure 3. Overlap of all determiners in "determiner+adjective+noun" sequences for time-1 children and mothers with regard to child's MLU

Figure 3 shows that children produced no overlap in adjective-modified determiner+adjective+noun sequences at Time 1, whereas limited maternal overlap was observed in the same structure. This pattern indicates that the near-floor child pattern in Table 3 is also visible at the individual level.

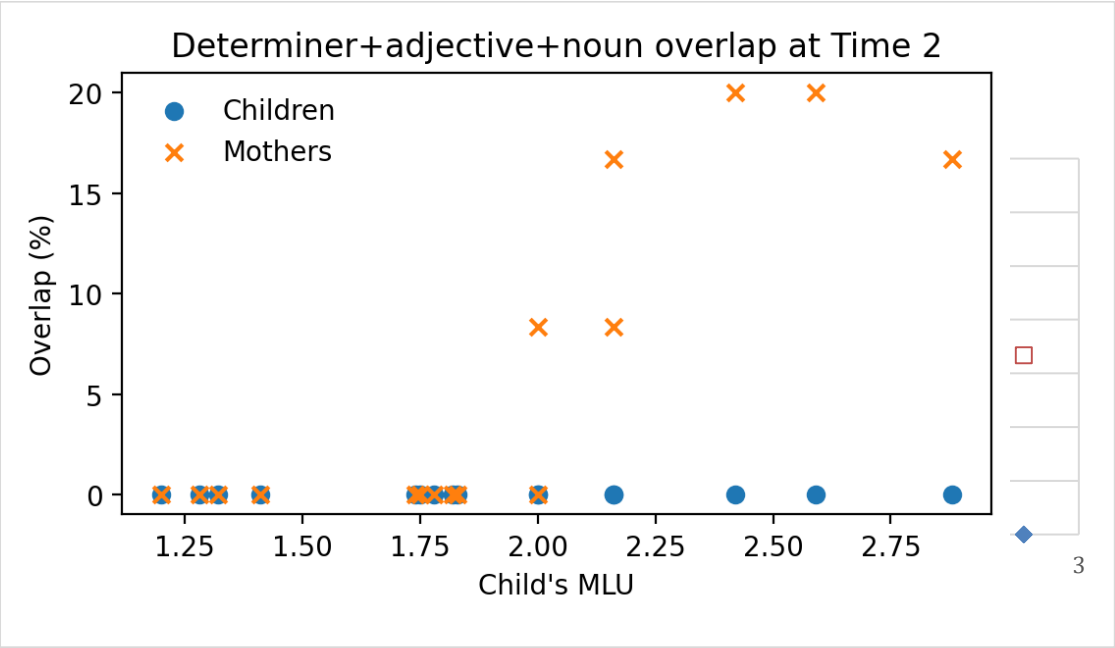

Figure 4. Overlap of all determiners in "determiner+adjective+noun" sequences for time-2 children and mothers with regard to child's MLU

Figure 4 shows that maternal overlap in adjective-modified structures increased at Time 2, whereas children continued to show no overlap in this structure. Thus, the developmental increase observed in simple determiner+noun sequences did not extend to adjective-modified determiner+adjective+noun sequences in the present dataset.

3.3. Findings for Analysis 3: Control Analysis

Analysis 3 examined whether children's Time 2 overlap in simple determiner+noun sequences was associated with three possible confounding variables: MLU, the number of noun types occurring with at least one determiner, and the number of determiner types. This analysis was limited to Time 2 determiner+noun data because this was the only child dataset with enough non-zero overlap values for exploratory correlation.

For children, no clear evidence of correlation was found between overlap and MLU, $r(16) = 0.16$, n.s.; between overlap and noun types, $r(16) = 0.30$, n.s.; or between overlap and determiner types, $r(16) = 0.35$, n.s. The corresponding exploratory correlations for mothers were also non-significant: MLU, $r(16) = -0.23$, n.s.; noun types, $r(16) = 0.41$, n.s.; and determiner types, $r(16) = 0.16$, n.s.

These results indicate that, within this dataset, Time 2 overlap in simple determiner+noun sequences was not straightforwardly explained by MLU, noun type counts, or determiner type counts alone. Because the sample is small and the analysis is exploratory, the absence of significant correlations should be interpreted cautiously.

4. Discussion

The findings show a clear contrast between the two nominal environments examined in this study. In simple determiner+noun sequences, children's overlap increased from Time 1 to Time 2 and approached maternal levels by the later recording period. In adjective-modified determiner+adjective+noun sequences, however, children produced no overlap at either time point, even though mothers showed limited and increasing overlap. This contrast suggests that evidence for determiner productivity is sensitive to the structural environment in which determiners are used.

This pattern helps refine the debate between early abstraction and item-based learning. The increase in simple-phrase overlap is compatible with the view that children gradually develop category-level flexibility in determiner use, as proposed in overlap-based approaches to determiner acquisition (Valian et al., 2009). At the same time, the absence of overlap in adjective-modified noun phrases is consistent with usage-based accounts in which early grammatical knowledge remains closely tied to familiar lexical and constructional frames (Pine & Martindale, 1996; Pine & Lieven, 1997; Tomasello, 2003). The present results therefore do not support an all-or-nothing interpretation. Instead, they point to construction-bound abstraction:

children may show distributional flexibility in simple nominal frames before that flexibility extends to more structurally demanding environments.

A plausible explanation concerns structural and processing complexity. In determiner+noun sequences, the determiner and noun are adjacent, and the relation between the functional element and the lexical noun is highly local. In determiner+adjective+noun sequences, the adjective intervenes between the determiner and the noun. This additional element may increase processing demands and reduce the likelihood that young children will productively vary the determiner within the same nominal frame. The findings therefore suggest that the emergence of a determiner category should be evaluated not only by whether children produce multiple determiners, but also by the syntactic environments in which such variation occurs.

The maternal data are important for interpreting the child results. Mothers produced overlap in both environments, but their overlap was much higher in simple determiner+noun sequences than in adjective-modified sequences. This indicates that adjective-modified overlap is less frequent even in adult input within these naturalistic interactions. For this reason, the absence of child overlap in adjective-modified structures should not be treated as direct evidence that children lack a determiner category. A more cautious interpretation is that children's productive use of determiners is still limited by the density of available input, the complexity of the structure, and the child's developing processing capacity.

The control analysis further moderates the interpretation. Children's Time 2 overlap in simple determiner+noun sequences was not clearly associated with MLU, noun type counts, or determiner type counts in this sample. This finding reduces the likelihood that the Time 2 child overlap was merely a mechanical consequence of having produced more nouns or more determiners. However, the analysis was exploratory and based on a small sample. It should therefore be understood as a descriptive check rather than as a definitive test of all possible frequency-based explanations.

Several limitations should be acknowledged. First, the Howe Corpus contains 16 dyads and a restricted developmental window, which limits generalisability. Second, adjective-modified noun phrases were sparse in children's productions, making inferential statistical analysis difficult. Third, token frequencies were uneven across speakers and structures. Fourth, immediate repetitions of maternal speech were not systematically excluded; some child productions may therefore reflect recent input rather than fully independent productive use. Fifth, the study examined British English only and focused on one type of complex nominal structure. The findings should therefore not be generalized directly to languages without article systems or to other kinds of intervening nominal structures.

Despite these limitations, the study contributes to theories of early grammatical development by showing that determiner productivity may emerge gradually and unevenly across constructions. Rather than asking only whether children possess an abstract determiner category, future research should ask where, when, and under what structural conditions category-level flexibility becomes observable. Denser longitudinal corpora, elicited production tasks, and comprehension experiments could test whether

children can extend determiner use to less frequent or more complex nominal frames under controlled conditions. Cross-linguistic comparisons are also needed to examine whether construction-bound abstraction appears in languages that encode definiteness, specificity, and reference through different morphosyntactic resources.

5. Conclusion

The present study systematically examined determiner overlap in the spontaneous speech of 16 British English-speaking children and their mothers in the Howe Corpus. The results showed that children's determiner overlap in simple determiner+noun sequences increased from Time 1 to Time 2 and approached maternal levels at the later time point. In contrast, children produced no overlap in adjective-modified determiner+adjective+noun sequences.

The findings suggest that early determiner productivity is neither uniformly abstract nor entirely item-based. Rather, it appears to emerge gradually and unevenly across constructions. Children may first show distributional flexibility in simpler nominal frames before extending that flexibility to structurally more complex contexts. The study therefore supports a cautious, construction-bound account of early grammatical abstraction.

Author contribution statement:

Qi Luo: supervised the study, conceptualized the study, conducted the corpus extraction and manual verification, performed the analyses, drafted the manuscript, and revised the manuscript.

Hongxia Zhang: contributed to the interpretation of the findings, and reviewed and edited the manuscript.

The usage of GenAI: Generative AI tools were used only for language polishing, formatting assistance, and preparation of revision support during the revision stage. No generative AI tool was used to generate empirical data, conduct statistical analysis, or determine the interpretation of the findings. All AI-assisted text was reviewed, verified, and approved by the authors, who take full responsibility for the content of the manuscript.

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Appendix

Child MLUs, frequencies of utterances, determiner tokens and types for children and mothers

Time	Child	Child MLU	Child			Mother		
			Utterances	Det tokens	Det types	Utterances	Det tokens	Det types
1	barry	1.60	324	27	4	263	122	10
	eileen	1.55	172	50	2	59	15	4
	faye	1.40	231	5	3	199	71	7
	graham	1.12	313	7	2	144	62	5
	ian	1.70	358	19	5	246	104	9
	jason	1.07	166	0	0	115	39	6
	kevin	1.18	366	5	2	509	197	12
	lucy	1.30	83	1	1	62	21	4
	melanie	1.48	418	12	5	74	10	3
	nicola	1.36	94	4	2	397	147	12
	oliver	1.57	204	4	2	376	183	8
	philip	1.36	239	0	0	339	79	8
	richard	1.45	147	4	1	46	15	5
	sally	1.56	326	10	3	386	141	12
	wayne	1.43	271	81	2	334	79	9
	yvonne	1.93	258	32	4	234	74	9
2	barry	2.59	190	23	6	196	84	10
	eileen	1.74	269	58	3	237	119	8
	faye	1.78	324	48	5	112	36	5
	graham	1.41	367	23	6	258	96	11
	ian	2.00	240	17	6	282	111	12
	jason	1.28	405	9	2	296	117	10
	kevin	2.00	373	18	6	402	181	12
	lucy	1.20	303	4	1	272	91	9
	melanie	1.82	323	2	1	138	53	8
	nicola	1.83	436	27	4	558	210	10
	oliver	2.16	524	95	7	406	213	10
	philip	1.75	268	24	6	369	131	7
	richard	2.42	281	55	7	314	135	13
	sally	2.16	413	68	9	498	260	15
	wayne	1.32	456	48	4	427	151	11
	yvonne	2.88	402	91	7	256	111	11