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On the tri-ambiguous status of *any*: The view from child language*

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Abstract This paper examines the monolingual acquisition of the English polarity-sensitive item *any*, and uses evidence from child language acquisition to shed light on two questions that arise from the theoretical semantics literature. First, evidence from child spontaneous speech production is used to argue that children are grammatically conservative in their acquisition of negative polarity item (NPI) licensing. The same child data are then used to argue the following: (i) there is only one NPI *any*, subject to a disjunctive licensing condition; (ii) NPI *any* differs in some way from free choice (FC) *any*, resulting in the later emergence of FC *any*.

Keywords: negative polarity, polarity sensitive items, NPI licensing, free choice, acquisition

1 Introduction

This study of the monolingual acquisition of the English polarity-sensitive item *any* takes as its starting point two distinct observations–one from the semantics literature, and one from the acquisition literature. From the semantics literature, we start with the observation that polarity-sensitive *any* in English appears to be ambiguous between its negative polarity counterpart and its free choice counterpart. The complexities of *any* as a lexical item are even more nuanced, however, when we look at the behaviour of *any* as a negative polarity item (NPI); it is licensed in both declaratives and interrogatives, though there is no obvious uniform licensing property that is common to both environments. A question that arises from the literature on *any* thus concerns the potentially three-way ambiguous status of *any*–is NPI *any* in declaratives the same as NPI *any* in questions, and are these "two" NPI instantiations of *any* the same as free choice (FC) *any*? In this paper, we will look to child language acquisition to shed light on these two questions.

The view we take from the child language acquisition literature is Snyder's (2007) theory of Grammatical Conservatism, which proposes that children take a

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grammatically conservative approach to language learning. That is, for any given grammatical construction, children wait until they have clear evidence of the grammatical parameter settings for the construction before producing it spontaneously. Providing evidence from the spontaneous speech of 40 children acquiring English as a first language, this paper will argue that children are grammatically conservative in the domain of semantics, and more specifically in their acquisition of *any*.

This paper is organized as follows. First, we focus on NPI *any*, beginning with an introduction to its licensing conditions in Section 2. In Section 3, we present the corpus study of the transcripts from 40 children acquiring American and British English. Section 4 presents a taste of the NPI/FC *any* debate, while Section 5 presents spontaneous child data that bear on the debate. Section 6 summarizes and concludes the discussion.

2 NPI *any* in declaratives and interrogatives

Any in English has a free choice counterpart and a negative-polarity counterpart, the latter of which concerns us in this section.

(1) You can have **anything** you desire. FC *any*

(2) You may read **any** book you like.

(3) a. I don't have **any** work to do. NPI *any*

b. * I have **any** work to do.

(4) a. I don't hear **anything**.

b. * I hear **anything**.

The semantics literature on NPI licensing is vast (see among others, Ladusaw 1979; Linebarger 1987; Horn 1989; Kadmon & Landman 1993; Krifka 1995). Many contemporary accounts are predicated on some version of the Fauconnier/Ladusaw proposal, according to which NPIs are licensed in the scope of a downward-entailing operator. An example of a downward-entailing operator is negation, as in (5). The inference in (5a) preserves truth when we move from a subset, e.g., the set of fathers, to a superset, e.g., the set of men. Negation reverses the direction of entailment in (5b), such that truth is preserved when we move from superset to subset.

(5) a. Fred is a father $\rightarrow$ Fred is a man

b. Fred is not a man $\rightarrow$ Fred is not a father

The downward entailment account has become rather widely accepted in the semantics literature; however, NPIs are also licensed in interrogatives, a fact that might appear to pose a problem for the downward-entailing account of NPI licensing, since

interrogatives are not downward-entailing in any obvious way. Guerzoni & Sharvit's (2007) approach to this potential problem is to argue that the licensing condition on (weak) NPIs is in fact disjunctive; that is, NPI licensing in declaratives is distinct from licensing in interrogatives. They observe that weak NPIs are always licensed in polar questions (root or embedded), as in (6), in the nucleus of matrix *wh*-questions, as in (7), and in certain embedded *wh*-questions, as shown in (8).[1]

(6) *Polar questions* (Guerzoni & Sharvit 2007: 362, 364)

a. Did you eat anything?

b. Claire wonders whether Frank has any books on negative polarity.

(7) *Matrix* wh-*question*

Who has any cars?

(8) *Embedded* wh-*questions*

a. Claire wonders which students have any books on negative polarity.

b. $^{\%}$ Claire knows which students have any books on negative polarity.

c. * It surprised Bill which students had ever been to Paris.

Guerzoni and Sharvit propose that weak NPIs are licensed in certain interrogative environments which are strongly exhaustive; the strong/weak exhaustivity distinction is exemplified in (9).

(9) John knows who left. (Guerzoni & Sharvit 2007: 369)

a. Weakly exhaustive reading: For every x, if x left, John knows that x left.

b. Strongly exhaustive reading: For every x, if x left, John knows that x left, and if x didn't leave, John knows that x didn't leave.

Following Groenendijk & Stokhof (1984), the authors suggest that to "know a question in the strong sense is to believe that the conjunction of its true answers is the conjunction of its actually true answers" (Guerzoni & Sharvit 2007: 370). The strongly exhaustive reading is available in (9), since it is possible for John to know both of the x's who left that they left and of the x's who didn't leave that they didn't leave. This property of strong exhaustivity allows NPIs to be licensed in such an environment:

(10) John knows who has any books on NPIs.

1 Guerzoni & Sharvit (2007) observe that weak NPIs are also licensed in the restrictor of plural, but not singular *wh*-phrases. They appeal to the notion of Strawson downward entailment (von Fintel 1999) to account for these (see their paper for details).

While *wonder* in (8) always provides a strongly exhaustive environment, *know* exhibits inter-speaker variation (those who can access the strongly exhaustive reading accept the NPI licensing in (8b)), and *surprise* does not support a strongly exhaustive reading. Polar questions are inherently strongly exhaustive, and again it is this property of strong exhaustivity that license NPIs:

(11) Did Mary buy any book from the Co-op?

Guerzoni and Sharvit argue that no attempt thus far to provide a uniform treatment of NPIs in declaratives and interrogatives has found much success. They therefore suggest a disjunctive licensing condition: weak NPIs in declaratives require a downward-entailing licenser, while weak NPIs in certain interrogative environments require a strongly exhaustive environment.

Armed with the above background information, we can now turn to the acquisition of NPI *any*.

3 Corpus study: NPI *any*

Our first step is to determine whether children are in fact conservative with respect to their acquisition of NPI *any*. That is, we will determine whether children wait until they have clear evidence of the licensing condition before producing NPI *any* spontaneously. One form of support for Grammatical Conservatism, among others, is the somewhat astonishing scarcity of "co-mission" errors in child spontaneous speech production, as opposed to errors of omission. If the children do not produce the NPI until they have adult-like knowledge of the appropriate licensing conditions, they should not produce many (commission) errors. By the time we see NPI *any* in the spontaneous corpora, children should already know the correct (disjunctive) licensing condition, and should thus know how to use the NPI correctly. To test this, we will look at the rates of licensed vs. unlicensed *any* in the transcripts of the spontaneous speech of English-speaking children.

If we determine that children are in fact conservative in their acquisition of *any*, then we can look to their data to test the disjunctive analysis of weak NPI licensing in English. Crucially, Guerzoni and Sharvit's analysis is meant to apply cross-linguistically; that is, the disjunctive licensing condition on NPIs is a part of Universal Grammar, and is built into the child's grammar. If what the child acquiring English needs to learn is that the lexical item *any* is a weak NPI, once she has knowledge of this, she should be expected to be capable of producing NPI *any* in both declaratives and interrogatives. We thus predict concurrent emergence of the NPI *any* in declaratives and interrogatives.[2]

2 To understand the rationale behind the prediction of concurrent emergence, it is crucial to think of

3.1 Methodology

To test the predictions made by assuming Grammatical Conservatism for the acquisition of the NPI *any* in English, I have studied the spontaneous speech production of 40 children acquiring English as their first language (18 American children, covering the age range 0;11,04–5;02,12, and 22 British children covering the age range 1;08,22–4;11,20). These corpora are available on the CHILDES database (MacWhinney 2000), and are listed in Tables 1 and 2.

Corpus	Child	Age range	No. of transcripts	No. of utterances
Bloom (Bloom, Hood & Lightbown 1974; Bloom, Lightbown & Hood 1975)	Peter	1;09,07–3;01,21	20	23,000
Brown (Brown 1973)	Adam	2;03,04–5;02,12	55	45,371
	Sarah	2;03,05–5;01,06	139	31,195
	Eve	1;06,00–2;03,00	20	10,856
Demetras (Demetras 1989)	Trevor	2;00,27–3;11,27	28	6,568
Kuczaj (Kuczaj 1977)	Abe	2;04,24–5;00,11	210	22,684
Providence (Demuth, Culbertson & Alter 2006)	Alex	1;11,16–3;03,21	56	31,423
	Ethan	0;11,04–2;11,01	50	21,898
	Lily	1;01,02–4;00,02	80	39,852
	Naima	0;11,28–3;10,10	83	43,542
	Violet	1;02,00–3;11,24	54	17,274
	William	1;04,10–3;04,15	44	21,220
Sachs (Sachs 1983)	Naomi	1;02,29–4;09,03	93	15,542
Suppes (Suppes 1974)	Nina	1;11,16–3;03,21	56	31,423
Weist (Weist, Pawlak & Hoffman 2009; Weist & Zevenbergen 2008)	Emily	2;06,06–4;05,19	23	7,264
	Emma	2;07,08–4;08,04	28	6,669
	Mat	2;03,10–5;00,05	56	10,157
	Roman	2;02,20–4;07,20	42	11,064
		TOTAL	**1,137**	**397,002**

Table 1 American English: Corpora under study

Using the *kwal* and *combo* programs available on CLAN, the corpus analysis program associated with the CHILDES database, we can find all child utterances

Guerzoni and Sharvit's disjunctive licensing condition not as two separate conditions, but as two halves of a single condition. Once the child knows that *any* is a weak NPI, she should be able to automatically apply the licensing condition to it.

Corpus	Child	Age range	No. of transcripts	No. of utterances
Belfast (Henry 1995; Wilson & Henry 1998)	Barbara	2;04,09–4;01,18	14	2503
	Conor	3;08,14–4;06,05	14	3045
	Courtney	3;04,00–4;00,11	7	2021
	David	2;00,03–4;02,03	14	2472
	Johnny	3;06,00–4;04,01	7	1678
	Michelle	2;04,28–4;04,19	14	3075
	Rachel	2;05,25–2;09,16	8	1184
	Stuart	3;05,12–4;05,04	11	3369
Lara (Rowland & Fletcher 2006)	Lara	1;09,13–3;03,25	120	47,876
Manchester (Theakston, Lieven, Pine & Rowland 2001)	Anne	1;10,07–2;09,10	68	19,866
	Aran	1;11,12–2;10,28	66	17,111
	Becky	2;00,07–2;11,15	68	23,300
	Carl	1;08,22–2;08,15	65	24,857
	Dominic	1;10,25–2;10,16	68	21,097
	Gail	1;11,27–2;11,12	68	16,947
	Joel	1;11,01–2;10,11	68	17,862
	John	1;11,15–2;10,24	64	13,303
	Liz	1;11,09–2;10,18	68	16,545
	Nicole	2;00,25–3;00,10	68	16,937
	Ruth	1;11,15–2;11,21	66	20,295
	Warren	1;10,06–2;09,20	67	16,587
Thomas (Lieven, Salomo & Tomasello 2009)	Thomas	2;00,12–4;11,20	379	198,647
		TOTAL	**1,392**	**490,577**

Table 2 British English: Corpora under study

containing *any*, and check for utterances containing negation and other potential NPI licensers, discounting imitations, repetitions, routine utterances, unclear utterances (symbolized in the transcripts with "xxx" or "yyy"), and single-word utterances (in which any potential licensers may be obscured and/or missing). In the same vein, utterances consisting solely of *any*+NP are also excluded. Charting out the development of the NPI *any* over the entirety of the transcripts for each child, we can then take note of the proportion of licensed and unlicensed *any*.

3.2 Results I: NPI *any*

3.2.1 Testing Grammatical Conservatism with NPI *any*

The first observation we can make from the data is that NPI *any* is not a high-frequency construction. Only 26 of the 40 children produced 15 or more instances of NPI *any*. To avoid distortion due to low denominators (i.e., low numbers of total NPI *any*), in analyzing the error rates, I will focus on these 26 children's results.

Taking first the total number of apparently unlicensed NPI *any* (i.e., instances of NPI *any* where a licenser seemed to be missing), I further classified the environments of these apparently unlicensed *any* into four categories: (i) plausibly negative, (ii) plausibly positive, (iii) plausibly interrogative, (iv) indeterminate. The plausibly negative cases were instances where the child clearly intended a negative meaning, but simply omitted negation. The plausibly positive cases involved positive environments in which the child used *any* but essentially intended *some*. The plausibly interrogative cases involved sentences which would be classified as grammatical if they were questions; these were initially counted as apparent errors because the transcriber did not use a question mark. It is sometimes possible however to determine the interrogative status of an utterance, using the surrounding context.[3] Finally, the fourth category was for occurrences of *any* that might or might not be grammatical; the surrounding context of these utterances was not enough for me to make a confident judgment. To be conservative, the error rate was based on the sum of the plausibly positive and the indeterminate cases. Some examples of licensed NPI *any*, omission of negation, and true commission errors follow.

(12) *Licensed NPI* any *(interrogative and declarative)*

Abe (Kuczaj corpus), Transcript 133 (3;09,12), Lines 461, 469

*CHI: can you find any scissors ?

*FAT: I'll look I don't think paper wings are a good idea (.) Abe .

*CHI: come on I can't find anything else .

(13) *Omission of Negation*

Sarah (Brown corpus), Transcript 33 (2;10,11), Line 410

*MOT: that's to make orange juice (.) squeeze the oranges for orange juice for babies .

*CHI: me ?

3 CLAN allows us to specify a number of preceding and following lines that surround the utterance containing the search string. In determining how to classify the apparent errors into the four categories, I examined as much of the preceding and following context as was relevant to the utterance at hand.

*MOT: yeah .
*CHI: I want any .
%com: negative meaning
*MOT: you don't want any !
%par: laughs
*CHI: no .
*CHI: xxx baby .
%alt: I not baby .

(14) *True Commission Errors*

Ruth (Manchester corpus), Transcript 23b (2;07,10), Line 809

*MOT: there you go .
*CHI: want anymore, Mummy .
*MOT: I think there only is three darling .
*MOT: I don't think there's anymore .

The mean error rate for the 26 children was only 3.16%, and did not differ significantly from a baseline error rate of 5% (chosen to accommodate speech and transcription errors) (one-sample $t(25) = 1.700$, two-tailed $p = .102$ NS). This result strongly supports the hypothesis that children are grammatically conservative with respect to their acquisition of NPI *any*. Both the American and British groups make very few NPI licensing errors, consistent with a conservative learning strategy. The children go from not producing NPI *any* at all to using it in licensed, well-formed constructions. Moreover, any "errors" in the corpora are interspersed among adult-like usage of the NPI. Crucially, the majority of the errors are errors of omission, rather than of "co-mission" (i.e., they omit negation, though they clearly intend a negative meaning). Errors of omission are very frequent in child language, and can be attributed to simple performance limitations. Errors of omission therefore do not constitute evidence against a conservative approach to acquisition.

3.2.2 Declarative vs. interrogative NPI *any*

Having seen evidence that children are grammatically conservative with respect to their acquisition of NPI *any*, we can reliably take the first of their repeated uses of NPI *any* as evidence that (NPI) *any* is by that point grammatically available to the child. We can then look to the child data to investigate whether the NPI *any* that appears in declaratives is the same as that in interrogatives. Guerzoni and Sharvit's

disjunctive analysis of weak NPI licensing implicitly assumes that the answer to this question is affirmative. If this is correct, then for the conservative child who waits until she has clear evidence of both halves of the disjunctive licensing condition, *any* should emerge concurrently in declaratives and interrogatives.

If there is a high enough frequency of both, the Binomial Test (cf. Snyder 2007: Chapter 5) helps us to judge whether the observed chronological gap between the first-observed declarative *any* and the first-observed interrogative *any* is simply due to a lower frequency of use of the construction emerging later. Assuming that the two *any*s maintain the same relative frequency once they are available, non-significance of the Binomial Test based on relative frequency indicates that the observed chronological gap is fully consistent with concurrent emergence, given the lower probability of sampling the less frequent construction (Snyder 2007).

The Binomial Test is based on First of Repeated Uses (FRU) (cf. Stromswold 1996; Snyder & Stromswold 1997), which means that a prerequisite of running the Binomial Test on any of the children's data is that the child has to demonstrate repeated use of the two constructions. In this case, we will naturally require a sufficient frequency of NPI *any* in both constructions. I thus only applied the Binomial Test to the data for the children who produced at least 15 NPI *any* in declaratives, and at least 15 NPI *any* in interrogatives, discounting repetitions, imitations, and isolates. In addition to having to meet this cut-off, the children had to show repeated use of NPI *any* in declaratives and interrogatives. Given these two criteria (the minimal cut-off of 15, as well as repeated use throughout the transcripts), we find that only 4 of the 40 children meet the cut-off (Peter, Adam, Abe, and Thomas).

I used the data from these four children and conducted the Binomial Test to determine whether there was a statistically significant gap between the onset of *any* in each environment. All four children's corresponding p-values were non-significant ($p > .05$), consistent with concurrent emergence of declarative and interrogative *any*.

We also observe that the number of the earlier type of *any* (e.g., declarative) produced by each child before the onset of the second type of *any* (e.g., interrogative) is very small (ranging from 2–6 instances); that is, upon producing the first type of *any*, each child was quick to proceed onto the second type. This, coupled with the non-significant p-values, suggests that the NPI *any* in declaratives and interrogatives is the same lexical item.

Another statistical test that can help us determine whether *any* surfaces concurrently in declaratives and interrogatives (and consequently lend support to a unified approach) is a correlation analysis, which essentially allows us to determine how well the onset of one kind of *any* predicts the onset of the other kind of *any*. If declarative and interrogative *any* are in fact the same lexical item, we expect

a very strong correlation between their respective First of Repeated Uses. Looking at ten children who might be argued to have shown productive use of *any* in declaratives and interrogatives, the results suggest a strong correlation between the onset of declarative *any* and the onset of interrogative *any* ($r = 0.858$, $t(8) = 4.726$, two-tailed $p = .0015$).

Summarizing, what we have seen in this section is evidence that NPI *any* surfaces in declaratives and interrogatives concurrently, lending support to the hypothesis that it is the same lexical item appearing in two different environments.

4 The NPI-FC *any* debate

We have discussed NPI *any* in the previous sections, but now let's consider how FC *any* might be similar to or different from NPI *any*. FC *any* generally expresses freedom of choice:

(15) a. You may write your paper on any topic.

b. You can have any flower you like.

c. Choose any card.

While NPI *any* is interpreted as a narrow-scope existential with respect to its licenser, FC *any* is usually interpreted as a wide-scope universal in modal and characterizing/dispositional statements (Horn 1972; Ladusaw 1979; Carlson 1981; Dayal 1998). There have been attempts to uniformly treat NPI/FC *any* (Kadmon & Landman 1993; Chierchia 2006), but these still face unresolved challenges from others who argue that FC *any* is a universal operator, and therefore inherently different from the existential NPI *any* (Dayal 1998, 2004). In the remainder of this section, we will look briefly at Kadmon and Landman's unified account, and then turn to some problems that such an account faces (Dayal 1998).

A great deal of the debate has been centered around the apparently differing quantificational force of NPI vs. FC *any*. For example, Carlson (1981) and Kadmon & Landman (1993) show that while the existential NPI *any*, like other existentials, cannot be modified by *almost*, FC *any* patterns with universals:

(16) Almost every lawyer could answer that question.

(17) Almost any lawyer could answer that question.

(18) * Almost some lawyer could answer that question.

(19) * I don't have almost any potatoes.

(Carlson 1981; Kadmon & Landman 1993: 354, 355)

Even proponents of the universal approach to FC *any* however admit that it would be ideal to capture some relationship between NPI and FC *any*. *Any* has parallels in other languages, so it is rather unappealing to suggest that the ambiguity between NPI and FC *any* is purely coincidental in English.

One attempt to unify NPI and FC *any* comes from Kadmon & Landman (1993) (hereafter K&L), who provide an influential account predicated on the notions of domain widening and strengthening. They argue that noun phrases (NPs) with *any* are existential in the same way that indefinite NPs are, but that they have an additional component to their meaning, namely that they widen the domain of quantification. Widening creates a stronger statement, and according to K&L, it is this combination of the semantic operation of widening and the semantic constraint of strengthening that licenses the use of *any*. Consider the following example, from their paper:

(20) *A*: I feel like French fries. Do you have cooking potatoes today?

a. *B*: I don't have potatoes.

b. *B*: I don't have ANY potatoes.

In the given context, *B*'s response in (20a) naturally does not extend to decorative potted potatoes, for example. In contrast, using *any* in (20b) widens the domain of quantification to include even potatoes that would normally be irrelevant in the context. This widening is done along a contextually given dimension, for example in this case, along a cooking vs. non-cooking dimension.

K&L also propose an account of the universal behaviour of FC *any*. The details are not particularly relevant to the acquisition study at hand, but very basically, they suggest that the generic indefinite *any* NP is universal with respect to its dimension of widening. Its universality comes from the genericity of the NP, and the fact that widening creates a reduced tolerance of exceptions. Without going into great detail, we can thus sum up as follows: K&L's unified analysis of NPI/FC *any* reduces the difference in their quantificational force to the difference between a non-generic and a generic indefinite.

Not everyone is convinced that NPI and FC *any* are the same creatures, however. Dayal (1998) offers an examination of phenomena that highlight ways in which regular existential indefinites differ crucially from *any*-NPs and regular universal quantifiers. Dayal treats FC *any* as a universal quantifier that ranges over the widest possible domain consistent with its property-denoting argument, making it essentially modal in nature. Her first argument for a universal account of FC *any* pertains to the fact that statements with a regular indefinite are compatible with adverbs of quantification, as in (21a); in contrast, the equivalent statements with *any* and *every*, as in (21b, 21c) only have a frequency reading. Meanwhile, (22b–c) are ungrammatical because they have i-level predicates that are incompatible with the adverb.

(21) a. An owl usually hunts mice. (Dayal 2004: 8)
b. Any owl usually hunts mice.
c. Every owl usually hunts mice.

(22) a. A lion is usually majestic.
b. *Any lion is usually majestic.
c. * Every lion is usually majestic.

If *any* were an existential indefinite, it ought to pattern with the indefinite rather than with the universal. Next, consider the phenomenon of subtrigging (LeGrand 1975), where postnominal modification of an *any*+NP in an episodic sentence rescues it from ungrammaticality:

(23) a. * John read any book. (Dayal 2004: 9)
b. John read any book he found.

According to Dayal, (23a) is unacceptable because it is not possible to quantify over the widest possible domain that includes all possible individuals, and to predicate something that is purely episodic of those individuals. The relative clause in (23b) repairs the sentence by providing a temporal bound that restricts the domain appropriately. Looking at subtrigging shows us yet another way that regular indefinites differ from *any*+NP and *every*+NP: while the *any*-NP in (24b) has universal force, the indefinite in (24a) does not.

(24) a. John talked to a student who came up to him. (Dayal 2004: 8, 9)
(∀ *reading unavailable*)
b. John talked to any student who came up to him.
(∀ *reading available*)
c. John talked to every student who came up to him.
(∀ *reading available*)

Finally, Dayal (1998) discusses the interaction between modals and partitive *any*. She suggests that K&L's account cannot capture the contrast between the following:

(25) a. You may take any of these apples. (Dayal 2004: 10)
b. * You must take any of these apples.

Given the above-mentioned problems for the unified approach to *any*, Dayal provides her own account of FC *any*. Details aside, her main proposal is that FC *any* is a universal determiner whose domain of quantification is not a set of particular

individuals but the set of possible individuals satisfying the restriction. Dayal (2004) goes on to suggest that her main arguments against the existential view of *any* have remained largely unaccounted for by proponents of the unified approach. It suffices to say that the debate in the semantics literature regarding the status of NPI vs. FC *any* is far from settled. Given this brief taste of the debate, let us now move to a discussion of the acquisition of FC *any*.

5 Corpus study: FC *any*

5.1 Methodology

In this section, the goal is to look to spontaneous child production to shed light on the NPI vs. FC debate. We can turn to binomial testing again to establish whether NPI and FC *any* are the same lexical item. If NPI and FC *any* are distinct lexical items, there is no reason to think that they should necessarily surface at the same time in every child's speech. The Binomial Test will enable us to use the relative frequencies of NPI and FC *any* to determine whether the onsets of each are consistent with concurrent emergence. Simply put, the concurrent emergence of NPI and FC *any* would lend support to unified accounts of *any*, while a significant gap for any of the children would at the very least require extra explanation on the part of any unified account of *any*.

Looking at the same 40 American and British English-speaking children, I examined the extracted utterances containing *any*, and sorted out the FC occurrences from the NPI occurrences. I then determined for each child the relative frequencies and the ages at which each first appeared, and conducted the Binomial Test.

5.2 Results II: FC *any*

5.2.1 Testing Grammatical Conservatism with FC *any*

First, it is worth noting that children appear to be extremely conservative with respect to their acquisition of FC *any*. There were hardly any occurrences of unlicensed FC *any*. Together, the American children only produced 38 instances of FC *any*, 18 of them from Adam (Brown corpus). Together, the British children only produced 29 instances of FC *any*, 25 of them from Thomas (Thomas corpus). Collapsing the two groups, we find a total of 67 instances of FC *any*, 65 of which appear to be grammatical, occurring in modal or dispositional statements.

28 of the 40 children did not produce any FC *any* at all. For those who did however, the age of onset of FC *any* varied from 2;07,18 (Emily) to 4;02,13 (Mat). Interestingly, the children went from not producing FC *any* at all to producing it in well-formed sentences involving modality. Of the 65 grammatical occurrences

of FC *any*, 58 involved modal statements, 11 of which also involved a dispositional/characterizing meaning. Some examples are given below:

(26) Abe (Kuczaj corpus), Transcript 192 (4;08,07), Line 285
*CHI: you can bring it anywhere you want to . *Modal*

(27) Emma (Weist corpus), Transcript 26 (4;04,18), Line 364
*CHI: I can eat anything I want to . *Modal*

(28) Thomas (Thomas corpus), Transcript 351 (4;05,09), Line 1809
*CHI: it does anything your car does . *Modal/Dispositional*

(29) Thomas (Thomas corpus), Transcript 351 (4;05,09), Line 1440
*CHI: I recycle anything . *Modal/Dispositional*

It is impossible to look at individual error rates, since only two children produced more than a few isolates of FC *any*. One of the two errors came from Sarah, who only produced a total of 5 FC *any*, and the other came from Joel, who only produced one instance of FC *any*. Nevertheless, a number of errors as small as two (out of a total of 67 instances) is quite suggestive that the children are generally conservative with respect to their acquisition of FC *any*.

5.2.2 FC vs. NPI *any*

Given that the children are conservative, we can expect that the first emergence of productive use of *any* (whether NPI or FC) in the transcripts can reliably indicate that *any* is grammatically available to the child (i.e., the child knows the licensing conditions and how to use the lexical item appropriately). We can thus look to the onset of NPI and FC *any* to see whether they emerge concurrently (suggesting that they are the same lexical item), or whether their onsets are separated by a significant chronological gap (suggesting that they are different).

As before, I took 15 as the cut-off for applying the Binomial Test. Only Adam and Thomas produced more than 15 NPI *any* and 15 FC *any*. Both children's p-values are highly significant ($p < .001$); moreover, they remain highly significant even after we apply a Bonferroni correction (i.e., multiply their p-values by 40, for the fact that 40 children were examined). For both children, FC *any* comes in significantly later than NPI *any*.

In addition to these results, consider the fact that 28 of the 40 children did not produce any FC *any* at all, though a fair number of these children produced a number of NPI *any*. If NPI and FC *any* are the same lexical item, it is somewhat odd that so many children produced as many NPI *any* as they did without producing a single occurrence of FC *any*. Taken altogether then, the data from the American and British

children seem to suggest that there is a difference between NPI and FC *any* that requires explanation.

5.3 Discussion

In light of our findings, there are two possible directions one could pursue. The first is to say quite simply that NPI and FC *any* are indeed two different lexical items. Since at the very core they have different lexical semantics, there is no reason to expect them to surface at the same time. We have seen that the children are conservative; therefore we can expect that on the one hand, they will wait until they have sufficient evidence for the licensing conditions on NPI *any* to use it, and on the other hand (completely separately), they will wait for enough evidence to know where FC *any* with its universal semantics can be used appropriately. Looking at the onset of each kind of *any* certainly seems to support this kind of disjoint treatment of the two *any*s.

An alternative is to keep with the unified approach and hypothesize that some independent reason is behind the disjoint acquisition path. In some sense, our findings in this paper have mirrored the debate in the theoretical semantics literature; consequently, if we want to pursue the hypothesis that NPI and FC *any* are the same lexical item to be acquired by the child, one natural area to look into is how to apply what proponents of the unified approach argue for to child language. The fact that FC *any* comes in significantly later than NPI *any* suggests that there is additional knowledge required for the use of FC *any*. To understand the source of this additional knowledge, we ought to look to some candidate differences between NPI and FC *any*. For example, whether we assume Dayal's proposal, which essentially makes *any* modal in nature, or a unified approach such as Kadmon and Landman's, one difference between the behaviour of NPI *any* and that of FC *any* that might yield divergent acquisition paths is the fact that FC *any* typically appears in modal statements, while NPI *any* is perfectly happy in episodic statements. In this respect, an investigation of children's acquisition of modality might shed light on why FC *any* ought to appear later than NPI *any*.

Another area to look into is the acquisition of implicatures. Following up on Kadmon and Landman's insights, Chierchia (2006) proposes two distinct implicatures that are associated with NPI and FC *any*; while NPI *any* triggers an *even*-like implicature (according to which the asserted proposition is the least likely in the set of alternatives), FC *any* triggers an *antiexhaustiveness* implicature (such that none of the possible alternatives that satisfy the restriction are excluded). Given Chierchia's proposal, one might compare the processing loads of the two implicatures. If for adults *antiexhaustiveness* poses a greater processing load than *even*, we might pursue the idea that *antiexhaustiveness* (and thereby FC *any*) simply requires greater

processing resources than are available to young children. On the other hand, if very young children (say younger than when FC *any* typically appears) can be shown to have the pragmatic competence to compute both implicatures, this would help to rule out processing of implicatures as the source of the divergence between NPI and FC *any*. One possible next step is therefore a detailed investigation of the acquisition of implicatures, and of the *even* and *antiexhaustiveness* implicatures in particular, in order to elucidate how the two might result in *any* surfacing in NPI environments earlier than in FC environments.

6 Conclusion

This study of the spontaneous production of children acquiring American and British English set out with three goals: (i) to test the hypothesis that children are grammatically conservative with respect to the acquisition of the multi-faceted lexical item *any*; (ii) to test the hypothesis that NPI *any* is subject to a disjunctive licensing condition; and (iii) to use child data to shed light on whether NPI and FC *any* are the same or distinct lexical items. We have seen that children are indeed grammatically conservative, as evidenced by low error rates. We have also seen evidence that declarative and interrogative *any* surface concurrently, which when taken together with the assumption that children are grammatically conservative, supports the disjunctive treatment of NPI *any* in declaratives and interrogatives. Finally, we have seen evidence that FC *any* emerges later than NPI *any*, a challenging observation that any adequate, unified semantic account of NPI/FC *any* must contend with. We have also seen some directions for future research, including a more detailed investigation of the acquisition of the unique properties associated with NPI and FC *any*, particularly those that have been proposed by proponents of the unified approach to NPI/FC *any*. Future work should involve experimental methods that will enable us to further elucidate the nature of such polarity-sensitive items in child language.

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