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PRAGMATIC CONTROL OF SPECIFICITY AND SCOPE: EVIDENCE FROM DUTCH L1A*

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Abstract

In this paper I argue, on the basis of intuitional and psycholinguistic evidence, that a grammatical constraint on scope ambiguity found in Dutch and some other languages, but not in English, is a rule of pragmatic competence. After showing that this constraint cannot be derived from the obligatory specificity of indefinites in certain contexts, nor from core syntactic properties of Dutch that distinguish it from English, I present experimental evidence that the Dutch scope constraint is not fully acquired by Dutch monolingual speakers until after the age of 12. Given standard assumptions about L1A, this can only be the case if this constraint does not derive purely from UG. I propose a construction-based account of it and suggest that this is generated by the same general cognitive processes that are primarily responsible for adult L2A.

1 The Scope Constraint

In English, when a sentence is composed of an indefinite subject, a transitive verb, and a direct object QP headed by *each* or *every*, it is generally SCOPALLY AMBIGUOUS.[1] For example, the sentence type illustrated in (1a) has both the SURFACE SCOPE (SS) reading paraphrased in (1b) and the INVERSE SCOPE (IS) reading roughly represented in (1c).

(1) a. *A bird has eaten each/every blueberry.* (ambiguous)
b. 'There is a bird who ate all the blueberries' (SS reading)
c. 'Each blueberry was eaten by a bird' (IS reading)

In Dutch, in contrast, sentences analogous to (1a) using *elke* or *iedere* as the universal quantifier generally do not allow the IS reading.[2] For example, most adult native

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[1] This term is intended here as a theory-neutral description of the logical ambiguity that is observed in sentences like (1a) and that can be described as the availability of two distinct sets of truth-conditions ("readings"), as represented by (1b) and (1c) in the case of (1a).

[2] Although differing subtly in connotation, *elke* and *iedere* have the same primary truth-functional meaning, which seems to be closer to that of *each* than to that of *every*. Unlike *each* and *every*, *elke* and

speakers of Dutch would find the sentences in (2) to be false if each blueberry were eaten by a different bird.[3]

(2) *Een vogel heeft elke/iedere bosbes opgegeten.* (unambiguous/only SS)
a bird has each blueberry up-eaten

These empirical claims about English and Dutch are based not only on native speaker intuitions but also on psycholinguistic evidence (for English, Kurtzman and MacDonald 1993; for Dutch, Regeling 1995). The descriptive generalization seems to be that Dutch has a general constraint on scopal ambiguity that English lacks. Moreover, Dutch is not unique in this regard. Rather, there appears to be a natural class of otherwise seemingly quite different and historically unrelated languages which all have the same, or a very similar, SCOPE CONSTRAINT. For example, two other languages known to be members of this family are Chinese (Huang 1982) and Japanese (Hoji 1985).

There are three basic ways in which the presence or absence of the scope constraint in a given language can receive a principled explanation consistent with the Innateness Hypothesis.[4] One approach is to try to derive it from some more general interpretive constraint that can in turn be derived from Universal Grammar (UG). Alternatively, one might attempt to attribute the scope constraint directly to UG. Finally, we might to try to derive the presence or absence of the scope constraint in a given language from an interaction between UG and UNIVERSAL COGNITION (UC). Here, the term "UC" refers to a hypothetical set of innately specified cognitive principles that are domain-neutral, i.e. that can in principle apply to language processing and language acquisition but that are not genetically pre-programmed to do so.[5] In other terms, under this third approach

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iedere can be used when the domain of quantification has been "widened" in the sense of Kadmon and Landman 1993), i.e. in contexts in which use of free-choice *any* would be obligatory in English (Philip 2002). Both *elke* and *iedere* can occur either as adverbs ("floated quantifiers") or as determiners. In the default case, determiner *elke* and *iedere* can only form a constituent with a [+count] NP, just like *each* and *every*. However, when expressing the free choice meaning, they can compose with a [–count] NP. Finally, as determiners, but not as adverbs, *elke* and *iedere* must agree in noun-class with the NP they compose with: for example, [*elk_ meisje*]/*[*elke meisje*] but [*elke jongen*]/*[*elk_ jongen*] (Booij 2002).

[3] Some native speakers find sentences like (2) slightly marginal when taken out of context. However, those that report this intuition do not find anything odd about sentences like *Jan heeft elke/iedere bosbes opgegeten* 'John ate each blueberry', which differ from (2) only in that the subject is definite rather than indefinite.

[4] I take the Innateness Hypothesis simply to be the thesis that certain cognitive phenomena are genetically predetermined rather than learned. The validity of this general hypothesis does not entail the existence of UG. That is, one could be a nativist and yet, with perfect consistency, deny that the theory of UG is an accurate model of the acquisition of grammatical knowledge. Two independent cases of this are the L1A theories of Elman, Bates, Johnson, Karmiloff-Smith, Parisi and K. Plunkett (1996) and Tomasello (2004).

[5] By the term "UG" I mean that hypothetical set of innately specified cognitive mechanisms and principles that apply only within the language faculty, i.e. that are specific to language processing and language acquisition. Note that this view—which is the Modularity Thesis—is not always adopted by theoretical linguists. For example, according to Chomsky (2004:104), certain elements of the language faculty "might be recruited from, or used for, other functions" (my underlining). As I use the terms, if an element of the language faculty is "recruited from" some other cognitive domain, then this element derives from UC rather than from UG. Moreover, if all the elements of the language faculty have some prior nonlinguistic cognitive function, then UG simply does not exist at all.

the scope constraint is attributed to PRAGMATIC COMPETENCE rather than to syntactic or semantic competence.

Let us first consider the approach which takes the scope principle to be an effect of some other, more general, UG-derived interpretive principle. Noting that all of the languages that have thus far been reported to have the scope constraint also have a SPECIFICITY CONSTRAINT, it might be hypothesized that the unavailability of the IS reading in sentences like (2) follows simply from the circumstance that an indefinite subject must be specific. The specificity constraint forces the subject to have an interpretation that is inconsistent with its being construed as having narrower scope than the universally quantified direct object. As for exactly how the specificity constraint should be derived from UG, there are a number of proposals in the literature (e.g. Reuland 1988, Enç1991, de Hoop 1992, Diesing 1992, Neeleman and Reinhart 1998, Van Geenhoven 1998, Portner and Yabushita 2001).

At first blush, the specificity-based account of the scope constraint looks promising. However, it faces at least four different major empirical problems. First, as is well-known, it is not really true that a specific indefinite must always have widest scope; in certain contexts it may alternatively have "intermediate scope"(e.g. Ruys 1992). Thus, to attain minimum descriptive adequacy, we must add the qualification that the Dutch specificity constraint holds in such a way that in a root clause a specific indefinite subject cannot take scope under any other scope-taking expression.[6] But now the problem is that as long as this qualification itself receives no principled explanation, the entire analysis reduces to a construction-based account of the scope constraint. If we must stipulate that the sentence type in (2) triggers the specificity constraint, and this in turn gives rise to the scope constraint, then it seems we might as well simply stipulate that (2) directly triggers the scope constraint. Other things being equal, Occam's Razor demands this simplification.

The second problem is that the scope constraint actually does seem to apply in English with sentences like (3a), and does not seem to apply in Dutch with sentences like (3b).

(3) a. *Santa Claus gave a child each toy.* (unambiguous/only SS)
b. *Een koning ging op elke/iedere schildpad zitten.* (ambiguous)
a king went on each turtle sit[–FIN]
'A king sat on every turtle."

Despite the strong pragmatic bias in favor of an IS reading, (3a) has only an SS reading; it is false if each toy was given to a different child. On the other hand, Dutch (3b) is just as scopally ambiguous as English (1a). It is not the case that for (3b) to be true the king in question must be someone like the turtle king in the Doctor Suess story *Yertle the Turtle*. Rather, this sentence can also be true if a different king sat on each turtle.

[6] Note in this regard that an English sentence like *A certain boy must sing each song*, which has a subject that must be specific in some sense, is nonetheless scopally ambiguous. I do not perceive any intuitional difference between this case of a specific indefinite DP being in the scope of a QP headed by *each* and cases such as *Every author in this room despises every publisher who would not publish a book that was deemed pornographic* (where *a book* can be taken as narrower in scope than *every author*).

The third and most problematic empirical difficulty for a specificity-based account of the scope constraint is that there is considerable individual variation across native speakers of Dutch as to whether or not a sentence-initial indefinite subject can have a nonspecific reading. For many it is always in principle possible for a high indefinite subject to be nonspecific as long as the verb is transitive (e.g. Reuland 1988). For these Dutch speakers, for example, (4a) can have a meaning comparable to (4b); it does not have to mean (4c).

(4) a. *Een vogel moet die bosbes opgegeten hebben.*
a bird must that blueberry up-eaten have
b. 'It is very likely that that blueberry was eaten by some bird or other.'
c. 'There is a certain bird in have in mind who very likely ate that blueberry.'

If the hypothesized specificity constraint need not apply in the case of (4a), it is hard to see why it should have to apply in the case of (3). Of course, we could add the qualification that the specificity constraint only applies to sentences that have both a sentence-initial indefinite subject and a universal quantified object. However, now our analysis simply reduces, once again, to a description of a construction. There is no need to make reference to specificity; it does no work for us.

Finally, the fourth empirical problem for any specificity-based account of the Dutch scope constraint is that at an age when monolingual Dutch children have fully acquired adult-like performance with specific indefinite subjects in sentence initial position they seem to have very little knowledge of the scope constraint (Philip and Termeer 2003, cf. Krämer 2000). That is, they readily assign an English-like IS reading to sentences like (2) under certain experimental conditions. In this regard, incidentally, they behave exactly like monolingual Chinese children of approximately the same age (Lee 1986, Chien 1994).

The second general approach to the scope constraint attempts to derive it directly from properties of UG, i.e. from the interaction of certain UG principles with the specific settings of certain UG parameters. As a representative of this approach, let us consider the syntactic proposal of Aoun and Li (1993), which offers an account of why a Chinese sentence like (5a) lacks the IS reading while its English analog in (5b) is scopally ambiguous.[7]

(5) a. *Y zh zh shu~ l me tiáo chuán*. (unambiguous/only SS)
a/one Cl pig paint Asp each Cl boat
b. *A piglet painted each boat.* (ambiguous)

[7] Actually, Aoun and Li (1993) offer three distinct syntactic proposals and, although I have generously interpreted their theory to be about the absence of scopal ambiguity in sentences like (5a), in fact they discuss this sentence type only twice in the entire monograph. Most of the time they exemplify the Chinese scope constraint with native speaker intuitions about Chinese sentences analogous to *Every pig painted a boat.* This is extremely curious since it is impossible to observe scopal ambiguity with such sentences. Given that most of their Chinese examples contained the adverb *dou* 'each', which seems to be a distributivity operator (Lin 1998), it may be that Aoun and Li were systematically confusing obligatory distributivity with an obligatory SS reading. Since distributivity cannot possibly be reduced to scope relations (e.g. Roberts 1989), the value of their theory lies in its ability to explain the cross-linguistic contrast in (5).

There are three severe empirical problems for this proposal, two of which come from Dutch.[8] Although in principle each of these problems could be dealt with by means of an additional stipulation (or an alternative set of basic syntactic assumptions), collectively they cast considerable doubt on the entire approach.

The first problem is that Dutch sentences like (2) are falsely predicted to be just as scopally ambiguous as English sentences like (1a). This is because according to Aoun and Li the crucial syntactic factor determining the Chinese/English contrast in (5) is whether or not the subject may be spelled out in a VP-internal position. In English, the subject must be removed from the VP and this is why English has scopal ambiguity. In Chinese, the subject may remain VP-internal in the surface form and this is why Chinese lacks scopal ambiguity. Obviously, this analysis cannot possibly extend to Dutch, since the subject in Dutch surface forms like (2) must be just as VP-external as the subject in English surface forms like (1a).

The second empirical problem arises from English minimal pairs like (6). While (6a) is scopally ambiguous, (6b) is just as unambiguous as a Chinese sentence like (5a) or a Dutch sentence like (2) above.

(6) a. *A bird has eaten each blueberry*. (ambiguous)
b. *A bird has eaten all the blueberries*. (unambiguous/only SS)

This suggests that the presence/absence of scopal ambiguity is dependent on some internal syntactic or semantic property of the direct object QP. Either it is a lexical property of *all* or a semantic or syntactic property of *all the blueberries* that directly triggers the scope constraint in (6b), or perhaps it is a lexical property that *each* and *every* have and the *all* lacks which licenses scopal ambiguity in (6a).[9] Whatever the correct analysis may be, Aoun and Li's proposal cannot explain minimal pairs like (6) without some additional stipulation.

The third empirical problem for Aoun and Li's proposal, which is also problematic for a specificity-based approach, is the observation that not all sentences of the type illustrated in (2) lack scopal ambiguity. As van de Wijngaerd (1992) has noted, there also are sentences like (7) which are just as scopally ambiguous as their English analog.[10]

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[8] In addition, it offers no account of the scopal ambiguity observed with Dutch sentences like (3b), though it does explain why the scope constraint applies to English sentences like (3a).

[9] Below I suggest that it is a lexical feature present in *each* and *every* and absent from *all* that is crucial for licensing the IS reading. Note, however, that the basic cross-linguistic contrast represented by (1a) and (2) cannot simply be reduced to the presence/absence of some lexical feature. This is because Dutch *elke* and *iedere* also must have this feature, given that scopal ambiguity is observed in (3b) above and (7) below.

[10] It is hard to see the ambiguity here because it is hard to imagine how the SS reading could ever be true. As we will see, this is precisely why the IS reading is licensed. However, (7) could in principle be true under an SS reading. Imagine a different world in which some very important religious figure was martyred on a weathervane, thereby transforming it into a holy relic, and, after years of bloody religious wars for possession of the "Holy Cock", it was finally agreement that the different churches of the land would take turns having possession of it for limited periods of time.

(7) *Een weerhaan sierde elke kerktoren.*
'A weathervane decorated each church spire'

2 A Pragmatic Account of the Scope Constraint

In the previous section we examined two purely UG-based theories of the scope constraint and found them both to have severe empirical problems. Of course, this does not show that no UG-based theory can possibly work. However, I hope I have at least persuaded the reader that it is worth considering whether there might be some alternative way to go that would offer us a slightly less bumpy ride. In this section I will attempt to outline such an alternative.

The starting point of my proposal is the idea that the scope constraint is actually nothing more than what it seems to be, namely a construction-based interpretive rule. Precisely because it is construction-based, it cannot possibly derive entirely from UG. Rather, it is hypothesized that this rule arises in the grammatical competence of native speakers of languages like Dutch and Chinese as the result of an interaction of UG with a general pragmatic principle that derives (ultimately) from UC. UG contributes the linguistic primitives used to define the construction in question, and presumably establishes the syntactic prerequisites for the existence of such a construction. (Perhaps the existence in Dutch of both a "high" and a "low" subject position is such a prerequisite.) However, it is a general pragmatic principle that creates the actual interpretive rule that is triggered by this construction. In the remainder of this section I will focus exclusively on an account of the Dutch scope constraint, leaving to future research an extension of the proposal to constraints on scopal ambiguity observed in Chinese, Japanese, in English with sentences like (3a), or in any other languages.

Note that the background assumption here is that UC is capable of getting involved in the business of processing and acquiring language but that, when it tries to do this, it performs in a very clumsy and inefficient manner, i.e. it posits constructions (cf. Tomasello 2004).[11] The idea the UC can mimic the work of UG in this fashion is not at all new. On the contrary, there is a well-established school of thought in L2A theory which maintains that (i) the Critical Period Hypothesis is valid and that therefore (ii) most of adult L2A must be driven by UC rather than UG (e.g. Clahsen & Muysken 1989, Bley-Vromann 1990, Neeleman & Weerman 1997).

What I propose for Dutch, then, is that there is a construction-based interpretive rule whose structural condition is represented in (8a) and whose semantic condition and function is represented by the conditional in (8b).

(8) a. $[DP_{[+TOPIC]}....[QP_{[+TOPIC\ ]}\ V]_{VP}\ ...]_{CP}$
b. If a sentence instantiating the construction in (8a) has scalar truth conditions because of the logically possible scopal interaction of DP and QP, then assign it the strongest possible reading consistent with the context of use

[11] Note that I am not adopting Tomasello's view that all of adult grammatical knowledge consists in nothing more than a set of constructions. This is a good description of the kind of linguistic knowledge that the adult L2 learner typically acquires, but precisely for this reason it is a poor description of the kind of grammatical knowledge that the child L1 learner acquires.

In addition, I assume that UG supplies the substantive universal described in (9a), the Dutch-specific interpretive rule described in (9b), and the universal interpretive principle described in (9c).

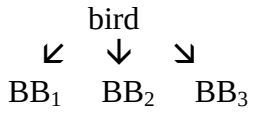
(9) a. *Elke* and *iedere* carry a lexical feature that causes the phrases they head to be obligatorily lexically marked [+TOPIC].
b. In Dutch, a sentence-initial DP is obligatorily syntactically marked [+TOPIC]
c. If a DP is lexically, morphologically, or syntactically marked [+TOPIC], then, (i) it can denote a subset of the objects that make up the "discourse topic" or "protagonist set" and (ii) it can take scope over any clause-mate scope-taking expressions.

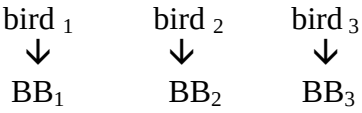
For concreteness, I am treating the feature [+TOPIC] as a primitive. Note also that the construction in (8a) includes information as to the internal constituency of the VP (abstracting away from the hypothetical VP-internal trace of the subject). The extension of this construction is the set of all transitive sentences whose direct object is a QP headed by *elke* or *iedere* and whose subject occupies Spec CP position.

To see how the proposal captures the Dutch facts, consider again the sentences in (2). For convenience, one of these is repeated in (10a), with its SS and IS readings represented in (10b) and (10c), respectively.

(10)a. *Een vogel heeft elke bosbes opgegeten.*
b. 'There is a bird who ate all the blueberries' (SS reading)
c. 'Each blueberry was eaten by a bird' (IS reading)

The kind of situations which would make (10a) true under the SS reading in (10b) may be represented roughly by the schema in (11a), where each BB stands for a different blueberry and the lines represent eating (and where 3 stands in for more than 1). On the other hand, the set of situations that would make (10a) true under the IS reading in (10c) is the union of situations of the type represented by (11b) with situations of the type represented by (11a).

(11) a.


b.


Clearly, the truth conditions of (10a) are scalar. The IS reading defines a weaker meaning that includes the meaning of the SS reading and that therefore is easier to verify. The SS reading defines a stronger meaning that is easier to falsify. Since (10a) satisfies the structural description in (8a) and verifies the antecedent of the conditional in (8b), the consequence in (8b) follows, i.e. the IS reading is suppressed. This is how the proposal captures the basic observation that Dutch sentences like (10a) are generally not scopally ambiguous. As for the cross-linguistic contrast with English, sentences like (1a) are scopally ambiguous simply because (i) English has no construction-based interpretive rule like (8a-b) but (ii) *each* and *every* have the [+TOPIC] feature so the UG principle described in (9c) applies.

As for cases like (7) where the IS reading is available, here the proposal once again makes a correct prediction because the SS reading is not consistent with the discourse context. There does not seem to be any possible situation consistent with the actual world that would verify it (but see footnote 10). Thus, since it is the only reading available, the IS reading is selected by (8b) as the strongest reading.

The proposal also straightforwardly captures the observation that Dutch sentences like (3b) are just as scopally ambiguous as (1a). This is correctly predicted simply because such sentences do not instantiate the construction described in (8a). Consequently, the interpretive rule in (8b) cannot apply and instead the UG-derived principle in (9c) applies. Here an additional assumption is that, if a sentence has two DPs marked [+TOPIC] either one can have scope over the other (and, of course, both can be subsets of the set of objects that the discourse is about).

3 Implications for Language Acquisition

As mentioned above, an integral part of the proposal is the claim that the scope constraint does not derive purely from UG but rather from an interaction between UG and UC. More specifically, it is hypothesized that this construction-based interpretive rule is engendered by a general pragmatic principle which, following Levinson (1983:145-6), we might call the PRINCIPLE OF INFORMEDNESS. This principle maximizes the informativeness of sentences by maximizing their falsifiability. Another instance of it, I suggest, is the principle described by the Strongest Meaning Hypothesis of Dalrymple, Kanazawa, Mchombo and Peters (1995). These authors show how the scalar truth conditions of reciprocal sentences are regulated by a principle that always assigns the strongest meaning that is not necessarily false, given the restrictions of the context. This is very similar to what (8b) does.

Now, given that my pragmatic proposal makes the claim that the scope constraint does not derive from UG, the L1 acquisition of this constraint can shed some light on the validity of this proposal. If it were found that children acquiring Dutch as a native language did not attain adult-like mastery of the scope constraint until a very late age, this would constitute evidence in support of any pragmatic account simply because it would cast doubt on all purely UG-based accounts. Recall that the reason why the existence of UG was posited in the first place—and the reason why evolutionary forces would have produced it, it seem to me—is that it is supposed to function as a LAD for the child. Not only does this make L1A possible, it makes L1A incredibly fast and early, and moreover guarantees virtually universal success (about 97%) at acquiring an L1. Nowadays most acquisitionists agree that by the age of 4, if not much much earlier, all of the major syntactic, morphological, and phonological parameters are set to the right value for the adult grammar and UG has essentially finished its work as an LAD for the L1.

In the experiment reported in the next section, we will indirectly test the pragmatic account of the Dutch scope constraint that I am proposing by directly testing a basic prediction of all UG-based counter-proposals. Assuming the validity of the Strong Continuity Hypothesis,[12] all UG-based counter-proposals predict that the Dutch scope

[12] This is the widely accepted hypothesis that all of UG is available to the child learner from the onset of L1A, i.e. from birth or earlier.

constraint will be fully acquired very early, like everything else that derives from UG. To be extra conservative, let us say that we will only consider this prediction falsified if the scope constraint is not mastered by the age of 8 years. This is the age that is often taken as the upper bound of the Critical Period (e.g. Long 1990).

4 Experimental Evidence from Dutch L1 Acquisition

The experiment used a standard truth-value judgment paradigm with a puppet making statements about a picture story and had a between-subjects design in which chronological age was the independent variable. The five levels of this factor were: six-year-olds, seven-year-olds, nine-year-olds, twelve-year-olds, and adults. Each participant was presented the test sentence only once. This occurred at the end of the story shown in Figures 1, 2 and 3 in the appendix. This story was presented after instructions and a warm-up story. The test sentence, which was the Dutch sentence shown in (2) above, was presented after two control sentences, labeled PD and PA, which occurred right after the 5th scene (see Figure 2). The PD and PA control sentences were designed to control for problems with attention or mastery of the experimental task (e.g. the yes-response bias). In addition, they satisfied the so-called felicity conditions of "plausible dissent" (PD) and "plausible assent" (PA) of Crain, Thornton, Boster, Conway, Lillo-Martin, and Woodams (1996). Elements of the 7th and 8th scenes provided additional conformity to these allegedly important methodological principles. Note that the PD control sentence was identical to the test sentence. This could have introduced a slight bias in favor of an adult-grammatical judgement of falsity.

The procedure for the six-and seven-year-old children involved two experimenters. One (the story-teller) sat at a table with the child and told the story, showing the child the pictures as she did so. The other experimenter (the puppet) sat opposite the child and the story-teller and purportedly tried to listen carefully to the story. Throughout the entire experiment the puppet was never allowed to see the pictures. The child was told that the puppet, whose name was "Drakkie", would sometimes have to say something that was true about the story. When this happened, the child was told, it was her job to judge the accuracy of the puppet's statement, indicating her judgement by saying "That's right" or "That's wrong". (No reward/punishment procedure was used.) The experiment was carried out in a quiet area of the school that the child was attending. The two experimenters were Dutch native speakers trained in L1A research methodology. The child's responses were recorded by hand on an answer sheet by the experimenter manipulating the puppet. Normal prosody was used at all times, with special care taken never to stress the indefinite article of the subject. The story was read only one time and the puppet repeated his statements only once if the child failed to respond immediately (which virtually never happen). For the older children and the adults, a similar procedure was used except that only one experimenter conducted the experiment, presenting the control and test sentences as yes/no comprehension questions about the story (i.e. felicitous as quiz questions).

142 monolingual Dutch children between the ages of 5;7 and 14;11 participated in the study, as well as 40 adults between the ages of 18 and 79. The numbers and mean ages of each age group are shown in Table 1 in the appendix, together with the results.

5 Conclusion

As can be gleaned from Table 1 below, the principal experimental finding is that, for all age groups, a great many of the child participants did not obey the Dutch scope constraint. Even with the oldest children, performance was very poor; the group performance of the twelve-year-olds did not differ significanlty from that of the six-year-olds but did differ significantly from that of the adults (p # 0.0518). Could these experimental findings be an artifact of the notorious yes-response bias? That seems highly unlikely in view of the fact that most of the participants had no difficulty whatsoever correctly judging the PD control sentence to be false. Moreover, the nine-year-olds and twelve-year-olds seem much too old for a yes-response bias to affect their performance significantly. They also seem much too old for their poor performance to be attributed to some hypothetical cognitive limitation. In particular, given the simplicity of the story and the ages of the older children, it is hard to see how the general lack of success in acquiring the scope constraint could be blamed on "poor discourse integration skills" (Kramer 2000). Thus, we seem to be driven to the conclusion that complete acquisition of the Dutch scope constraint is incredibly delayed and gradual. In this regard it is interesting to note that complete L1A of the strongest meaning principle of Dalrymple et al. (1995) is also extremely delayed (Philip 2000).
A second noteworthy finding of the study is that as many as 15% of the adult native speaker participants failed to obey the scope constraint. This suggests either that there is significant dialectal or ideolectal variation as to the existence of the scope constraint in a Dutch native speaker's grammatical competence, or that it is more of a preference than a rule. In either case, this is not what one would expect of an operation or principle that derives from UG. Rather, it is what one would expect of a rule of pragmatic competence (cf. conversational implicatures).

In conclusion. both experimental findings strongly suggest that the Dutch scope constraint does not derive purely from UG but rather is a part of pragmatic competence. This piece of native speaker grammatical knowledge seems to be acquired by the same inefficient language learning mechanisms that are typically employed by adults in their struggle to acquire an L2. This would explain why not all Dutch native speakers succeed in acquiring the scope constraint. Finally, given that its acquisition not guaranteed, it would not be surprising to find that there is dialectal or ideolectal variation within Dutch as to existence of the scope constraint.

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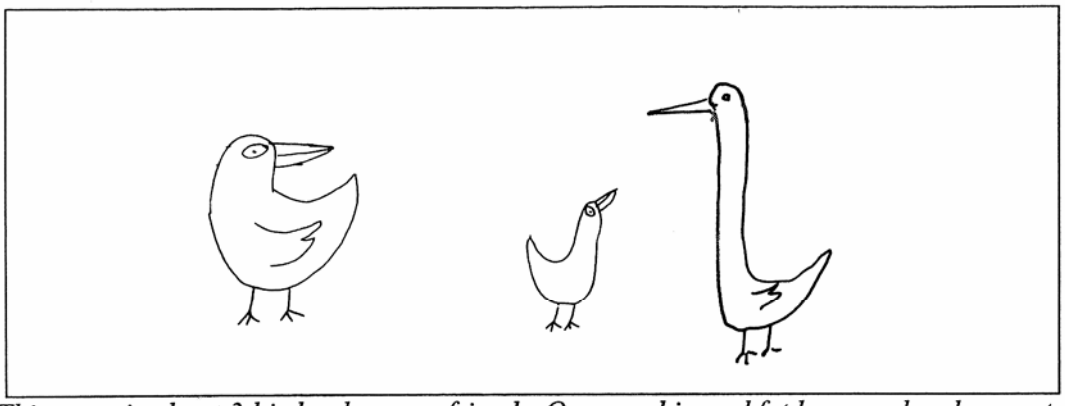
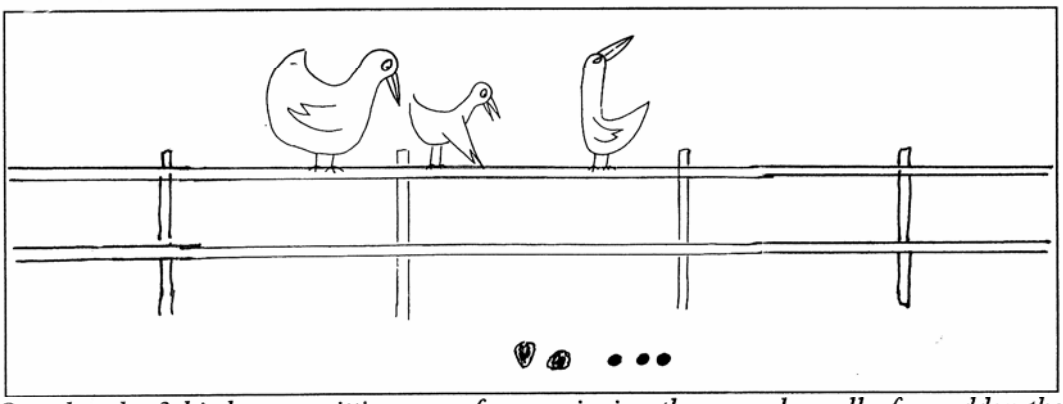
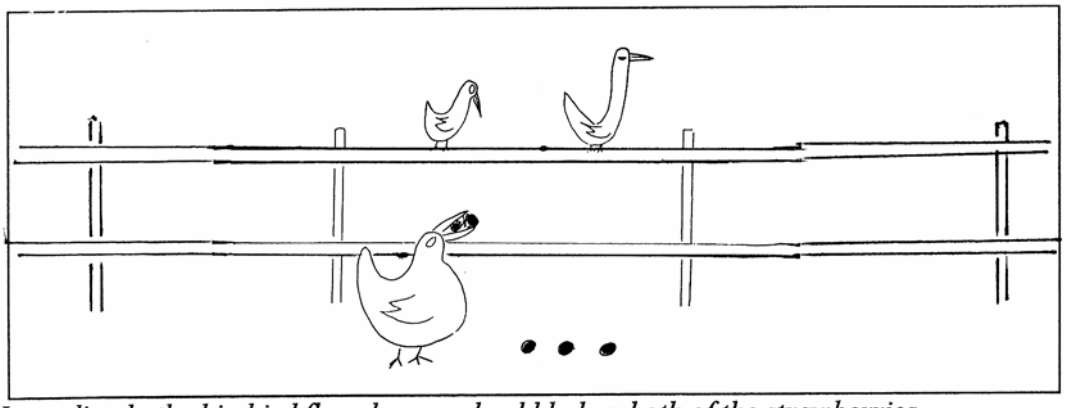
Appendix



This story is about 3 birds who were friends. One was big and fat because he always ate too much. One was thin because he never ate enough. And the last was small, because he was young.

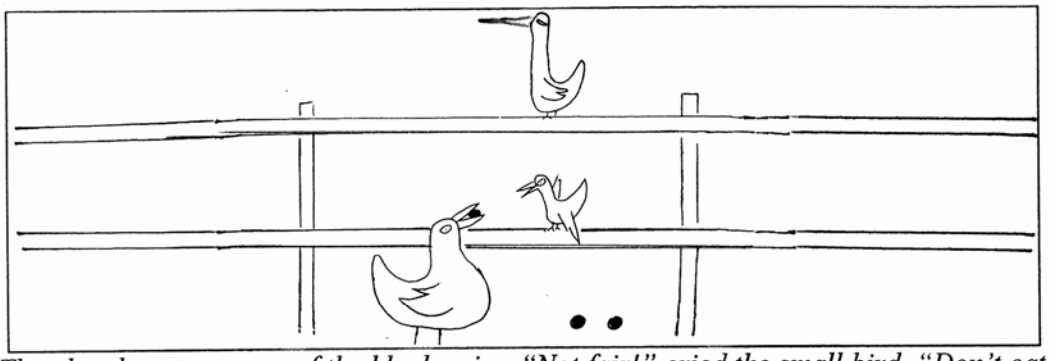


One day the 3 birds were sitting on a fence enjoying the sun when all of a sudden the small one pointed to the ground and said, "Hey Look! Strawberries and blueberries!"

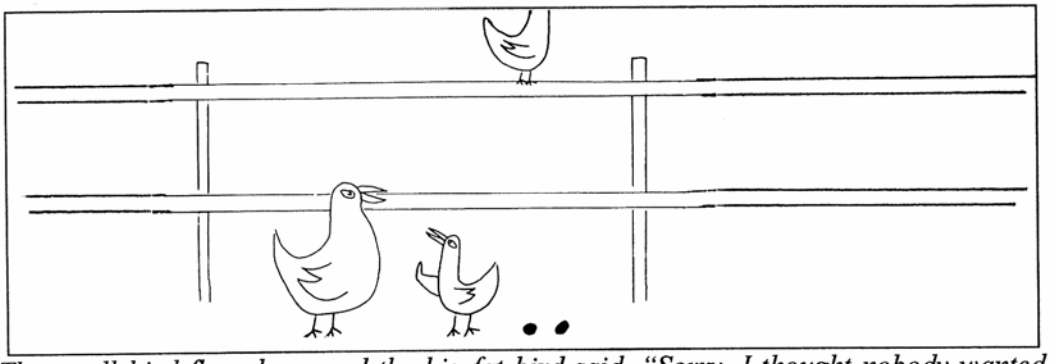


Immediately the big bird flew down and gobbled up both of the strawberries.

Figure 1. 1st through 3rd scenes.



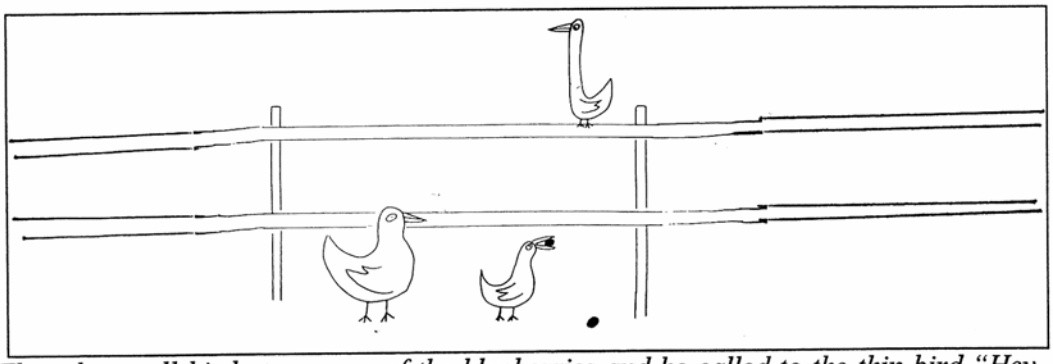
Then he also ate up one of the blueberries. "Not fair!" cried the small bird. "Don't eat up all the blueberries too. Leave some for us."



The small bird flew down and the big fat bird said, "Sorry. I thought nobody wanted them." Okay Drakie, tell us something that happened.

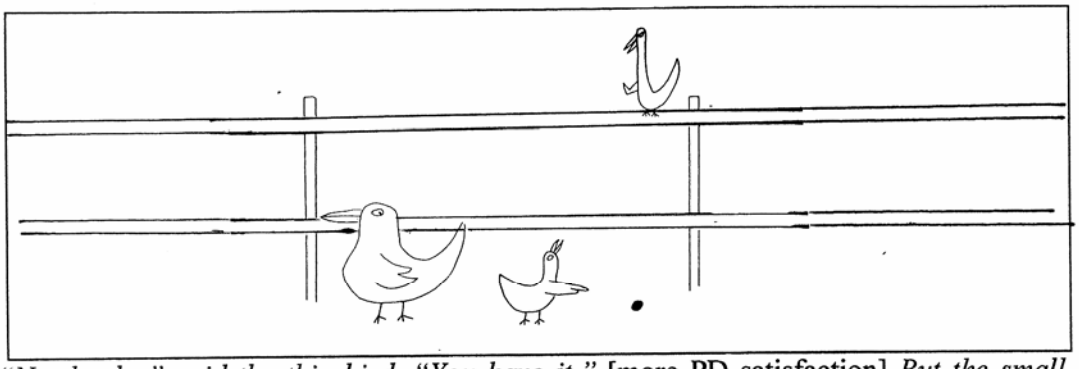
(Puppet) ***Een vogel heeft elke bosbes opgegeten.*** (PD control sentence)
'A bird has eaten each blueberry.'

(Puppet) ***Een vogel heeft elke aardbei opgegeten.*** (PA control sentence)
'A bird has eaten each strawberry.'

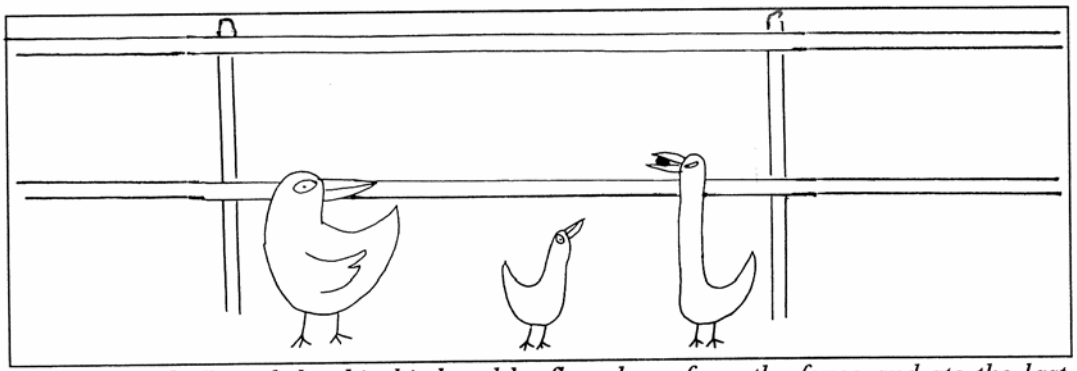


Then the small bird ate up one of the blueberries and he called to the thin bird "Hey. This last one is for you."

Figure 2. 4th through 6th scenes, including the. PD and PA control sentences.



"No thanks," said the thin bird, "You have it." [more PD satisfaction] *But the small bird said, "No. It's for you. It's really delicious. Come on. Try it."*



"Well, all right," said the thin bird and he flew down from the fence and ate the last blueberry. [more PA satisfaction] *Okay Drakie, tell us something that happened.*

(Drakie) ***Een vogel heeft elke bosbes opgegeten.*** (Test)
'A bird has eaten each blueberry'

Figure 3. 7th and 8th scenes. Test sentence presented only one time per subject.

Table 1. Percent Falsity Judgments and Age Statistics

	n	mean age	PA	PD	Test
6-yr-olds	**27**	**6;5**	**30%**	**85%**	**67%**
7-yr-olds	**33**	**7;5**	**16%**	**94%**	**65%**
9-yr-olds	**39**	**9;9**	**0%**	**100%**	**77%**
12-yr-olds	**43**	**12;8**	**0%**	**100%**	**64%**
adults	**40**	**29**	**0%**	**100%**	**84%**