Everything is not equal in adult and child Dutch

Article *in* Linguistics in the Netherlands · June 2023

CITATIONS
0

1 author:

Jacqueline van Kampen
Utrecht University
79 PUBLICATIONS **447** CITATIONS

SEE PROFILE

Everything is not equal in adult and child Dutch

The scope of universal quantifiers with negation

Abstract

An investigation into the production of universal quantifiers with negation in the CHILDES database of Dutch shows several scopal properties that have not been discussed before. First, it shows a crucial distinction between child and adult Dutch. A universal quantifier with scope over negation has an isomorphic interpretation in adult Dutch, but an inverse scope interpretation in child Dutch. This raises the question why children do not adopt the surface scope interpretation. Second, it indicates a possible answer to the puzzle why languages often avoid a universal quantifier under the scope of negation. I will discuss the idea that the explanation may lie in the type of reading of a quantifier, collective/distributive and specific/non-specific. It might also explain why no language has a lexicalized negated universal pronoun **neverything*.

Keywords: scope, universal quantifiers, negation, adult and child Dutch, CHILDES

1. ***Introduction***

1.1 Negation under the scope of a quantifier

In some languages, like English, a universal quantifier having scope over negation at surface structure (PF phonetic form) may have an isomorphic interpretation at LF (logical form) as in (1a), indicating an empty set Ø. It may also have an inverse scope interpretation with negation having scope over the universal quantifier as in (1b) (∀ = universal quantifier, ¬ = negation).

(1)	All arrows don't hit the target.		logical interpretation
	a.	No arrows hit the target.	∀x > ¬
	b.	Not all the arrows hit the target.	¬ > ∀x

The most frequent logical interpretation in English is the one in (1b). Several factors may disambiguate the construction. For instance, focus stress on the quantifier results in inverse scope assignment. The isomorphic interpretation is often chosen for rhetoric reasons, for instance for an empathic appeal or a red flag generalization, an exaggeration that cannot possibly be true as in *alle vrouwen kunnen niet autorijden* ('all women cannot drive'). See Neukom-Hermann (2016) for a detailed study.

Standard adult Dutch has only the isomorphic interpretation (Zeijlstra 2004: 118-119). The sentence in (2) means that there is no child that likes spinach. The function of *alle* is emphatic rather than quantificational.

(2)	Alle kinderen	lusten	geen	spinazie.	∀x > ¬
	all children	like	NEG	spinach	*all not = none*
	'All children don't like spinach.'				

The sentence of a Dutch child in (3) comes from the CHILDES database. Strikingly, it has the inverse scope interpretation 'not all children', because the child liked *pepernoten* and so did

her sister. It is the most frequent interpretation of Dutch pre-schoolers in the database. Crucially, the inverse scope interpretation was not attested in the speech of the caretakers.

(3) Alle kinderen lusten toch geen pepernoten. ¬ > ∀x (age 4;06.30)
all children like prt NEG 'pepernoten' *not all*
'All children don't like Dutch ginger nuts.'

The wide scope interpretation of negation is frequent in English, not available in standard adult Dutch, but it is available in child Dutch. Moreover, it is attested in Dutch dialects. The sentence in (4a) is from speakers of Dutch dialects in the SAND corpus (Barbiers et al. 2008). It is a general statement about professionals. Occasionally, wide scope interpretations are also found in informal Dutch. See example (4b) from the internet.[1]

(4) a. Iedereen is geen vakman. ¬ > ∀x
'Everybody is not a professional.'
b. Alle mensen houden niet van hetzelfde. ¬ > ∀x
all people like not the same'
'Not all people like the same things.'

In the examples above, a universal quantifier has surface scope over negation, which leads to ambiguity. Languages vary in allowing an isomorphic interpretation (Dutch), an inverse scope interpretation (Swedish, Norwegian), or both (English) (Zeijlstra 2004).

When an existential quantifier has surface scope over negation, only the isomorphic interpretation is available in languages (∃ = existential quantifier). See (5).

(5) Ik heb iets niet gekocht. ∃x > ¬
I have something not bought
'There is something I didn't buy.'

This paper will discuss the scope of universal quantifiers with negation in adult and child Dutch. Dutch has the following universal quantifiers: *allemaal* ('all'), *allebei* ('both'), *alles* ('everything'), *altijd* ('always'), *alle* NP ('all NP'), *overal* ('everywhere'), *elk(e)*/*ieder(e)* NP ('each/every NP'), *iedereen* ('everybody'). *Allemaal* and *allebei* are floating quantifiers (FQ).

1.2 A quantifier under the scope of negation

When a quantifier appears under the scope of negation, the truth value alters. This is exemplified below for the existential quantifier *iets* ('something') and the universal quantifier *alles* ('everything') with the negative marker *niet* ('not').

An existential quantifier under the scope of negation (6a) is logically equivalent to a universal quantifier having scope over negation (6b).

(6) a. Ik heb niet iets gekocht. ¬ > ∃x ≡ ∀x > ¬
I have not something bought

[1] The Dutch corpora are from the early 90s. It may be that the last 30 years a change has taken place in the acceptability of inverse scope readings by speakers of standard Dutch. Even so, it doesn't make the learnability problem less fascinating.

b. Ik heb alles niet gekocht. ∀x > ¬
I have everything not bought
'I didn't buy anything.'

In the unmarked case, the sentences in (6) are expressed by the lexicalized Neg+existential *niets* ('nothing'), which blocks the use of the periphrastic expressions *niet iets* ('not something') and *alles niet* ('everything not'). In general, a more complex, periphrastic construction gets blocked by a morphological or lexicalized construction if both are logically equivalent. Many languages have such a lexicalized Neg+existential with the collective reading of an empty set.

A universal quantifier under the scope of negation, *niet alles* ('not everything') in (7a), is commonly analyzed as logically equivalent to an existential quantifier having scope over negation, *iets niet* ('something not') in (7b).

(7) a. Ik heb niet alles gekocht. ¬ > ∀x ≡ ∃x > ¬
I have not everything bought
b. Ik heb iets niet gekocht. ∃x > ¬
I have something not bought

There is, though, no language that has a lexicalized Neg+universal **nalles* ('*neverything').

The remainder of the paper will discuss the following. Section 2 will question the logical equivalence of (7a) *niet alles* and (7b) *iets niet*. That might explain the non-occurrence of **nalles*. Sections 3-4 will discuss why examples (2) and (3) deviate from what one might expect given what is said above. The arguments are supported by spontaneous speech data from CHILDES. Section 3 will argue why blocking does not take place in (2) in adult Dutch. Instead of a lexicalized Neg+existential, the universal quantifier *alle NP* followed by *niet* in (2) is used. Section 4 will discuss why the logical interpretation ¬ > ∀x in (3) in child Dutch deviates from the isomorphic interpretation in adult Dutch. Section 5 serves as a conclusion.

This paper is meant as a modest contribution to the vast literature on the scope of quantifiers with negation. The present discussion adds to the debate a thorough investigation of occurrences in a database of spontaneous speech of over 1.600.000 words: the Dutch Groningen, SchlichtingVanKampen, Van Kampen and Wijnen corpora in CHILDES (MacWhinney 2015). The age range of the children is 3;0-5;5 with additional diary data up till 8;10 years. The present paper is not meant as a contribution to the ongoing debate on experimental results in the acquisition literature. That debate tackles the question how children interpret quantifiers. See Crain (2017) for an overview. The present paper deals with theoretical issues about scope interactions between quantifiers and negation based on new data. The child data with inverse scope interpretations have not been attested before.

2. Universal quantifiers under the scope of negation

2.1 A problem with PF ¬ > ∀x

The non-existence of a lexicalized Neg+universal is not the only linguistic puzzle. Languages often avoid a universal quantifier under the scope of negation altogether. Van der Wouden (1996) remarks that in French **pas chacun des NP* is ungrammatical and that Dutch, which allows *niet alle NP*, would be an exception.

Various explanations for the non-existence of a lexicalized Neg+universal have been given. Huijbregts (1979) assumes a UG principle that blocks the lexicalization of *niet alles* (**nalles*) in case *alles niet* has been lexicalized (*niets*). Note that this is blocking by a nonsynonymous expression and not blocking by a logically equivalent expression as in (6). Horn (1972) explains the absence of negated universals also by a blocking principle. The existence of a lexicalized existential quantifier like *some* blocks the lexicalization of *not all*. Although *some* and *not all* are not logically equivalent, they are pragmatically equivalent, and a language does not need to lexicalize both. See Hoeksema (1999) for a critical discussion. Hoeksema has another explanation. For two elements to be lexically merged, they must be frequently adjacent. The chance that the immediately preceding element of a universal quantifier is *not*, is fairly small (Hoeksema 1999: 11).

Hoeksema refers for the non-adjacency to English. In Dutch, though, there is almost always a strict adjacency between *niet* and the quantifier as the figures in section 2.4 will show. Therefore, I will take a different route, one that takes the ungrammaticality of **pas chacun* as a starting point. The explanation is based on the type of reading of the quantifier, collective/distributive or specific/non-specific.

2.2 Collective, distributive and non-specific/specific readings of quantifiers

If both sentences in (7) have the logical interpretation $\exists x > \neg$ 'something not', a legitimate question is why both *niet alles* and *iets niet* cannot be expressed by a lexicalized **nalles*.

A classic example to prove the logical equivalence is with an attributive quantifier followed by a noun, as in (8).

(8) a. Not all students played poker. $\neg > \forall x \equiv \exists x > \neg$
b. Some students did not play poker. $\exists x > \neg$

The universal quantifier *all NP* may have a collective reading (9a) or a distributive reading (9b) depending on the predicate or the pragmatic context.

(9) a. All students must gather in the hall.
b. All books cost 25 euro.

The existential quantifier *some* NP in (10) has a collective reading. The NP modified by *some* refers to the set of entities as a whole (Kontinen & Szymanik 2008). The collectivity is stressed by adding a modifier like *together* or an inherently collective predicate like *form a team* (Broekhuis & Den Dikken 2012: 6.2.2).

(10) Some students played poker together/formed a team.

The quantifiers used in example (7) are independent pronouns, universal *alles* and existential *iets*. Other existential pronominal quantifiers in Dutch are *iemand* ('somebody'), *ergens* ('somewhere') and *ooit* ('ever'). They are indefinite pronouns with a specific or a non-specific reading.

Examples (11) and (12) are among the 15 examples I found in the CHILDES database. With a specific interpretation the quantifier refers to a certain person, thing or place. See (11) where *iets* refers to a specific Lego brick.

(11). Ik kan iets niet vinden.
I can something not find
'There is something I cannot find.'

With a non-specific interpretation, the quantifier refers to some not defined person, thing, or place as in (12).

(12). Dan kan hij gewoon ergens niét langs.
then can he prt somewhere not along
'Then he simply can't get passed something.'

When the quantifier gets stress, as in (13), it can only receive a specific reading (Broekhuis & Den Dikken 2012: 5.2.1.3).

(13) Iémand heeft gebeld
somebody has phoned

By contrast, the sentence in (14) with *iets* referring to non-specific things is only grammatical when *niet* gets stress.

(14) Heeft hij iets niét gekocht?
has he something not bought?
'Is there something he didn't buy?'

This complies with the general idea about indefinite DPs. An indefinite DP interpreted within the scope of an operator (including negation) is taken to be non-specific relative to that operator, while when interpreted outside the scope of an operator (including negation), it is taken to be specific relative to it. Admittedly, the difference between (13) and (14) results from stress assignment and not from relative scope assignment. However, it may be argued that the stress gives prominence to the quantifier, respectively to *niet*.

When the quantifier is an indefinite pronoun, the following situation arises. The negation of a universal quantifier *niet alles* can be logically equivalent to *iets niet* meaning 'some thing(s) not' (15a), but it cannot be logically equivalent to *iets niet* meaning 'a specific thing not' (15b).

(15) a. *niet alles* ≡ *iets niét*, meaning 'some thing(s) not'
b. *niet alles* ≠ *iéts niet*, meaning 'a specific thing not'

The logical equivalence also holds when both have the same reading with an attributive quantifier as in (8).

2.3 Restrictions on PF ¬ > ∀x

Let us return to the ungrammaticality of **pas chacun* and see which are the restrictions of a universal quantifier under the scope of negation. An important distinction has been made between attributive quantifiers w.r.t. the type of reading. The *all* quantifiers have a collective (9a) or a distributive (9b) reading, whereas the *every/each* quantifiers have in general a distributive reading. However, there are some exceptions. For instance, in English *each* is

obligatorily distributive, whereas *every* is not. See the examples in (16) from Beghelli & Stowell (1997).

(16) a. It took all the boys/every boy to lift the piano. (collective)
b. *It took each boy to lift the piano.

Dutch allows a non-distributive reading of *ieder(e)/elk(e)*. It is frequently attested with a temporal NP. The quantified temporal NP may be preceded by negation. In (17) the speaker does not have specific days in mind he doesn't take a bath.

(17) Ik neem (niet) elke/iedere dag een bad.
'I (don't) take a bath every day.'

The non-specific reading with a temporal NP is also available in English *not every day*, French *pas chaque jour*, and Afrikaans *nie elke dag*.

Specificity also plays a role with the initial problem of **pas chacun*. The grammaticality of *pas chaque (jour)* and *not every (day)* contrasts with the strong ungrammaticality of *pas chacun* and *not each* in (18). See Baunaz (2011: 113) for French and Beghelli & Stowell (1997) for English. Negation cannot have surface scope over a universal quantifier with a specific reading. I follow here Baunaz (2011) who extensively argues that *chacun* and *each* are intrinsically specific and necessarily trigger distributivity. The same holds for Dutch *elk van de* ('each of the') in my opinion.

(18) a. *Not each boy ate noodles.
b. *Pas chacun des enfants a mangé des pâtes.
c. *Niet elk van de kinderen heeft pasta gegeten.

In short, a universal quantifier under the scope of negation cannot be intrinsically specific and seems to require a non-specific interpretation. The logical equivalence may hold for the sentences in (8), but not uniformly for the ones in (7).

Next, let us consider the non-occurrence of a lexicalized Neg+universal. The sentences in (6) have the reading of an empty set and that holds for all quantifiers, attributive or pronominal. The lexicalized Neg+existential *niets* blocks the appearance of *alles…niet*. By contrast, blocking does not occur for the sentences in (7). A lexicalized Neg+universal, if it existed, would be logically equivalent to an existential quantifier having scope over negation. However, since the logical equivalence does not uniformly hold for all quantifiers, such a lexicalized negated quantifier would have the undesirable effect to block all logical $\exists x > \neg$ interpretations including the ones with a specific interpretation, without making the crucial distinction between *niet alles* and *iéts niet*. See the discussion of the logical interpretations in (15).

In the forthcoming sections, the corpus data will be presented**.** I will first discuss the universal quantifiers under the scope of negation and their adjacency (section 2.4). The expectation is that all attested examples will have a non-specific reading. Thereafter the occurrences of negation under the scope of a quantifier will be discussed (sections 3-4).

2.4 The data in adult and child Dutch

Table 1 presents all occurrences of universal quantifiers under the scope of negation.

Table 1. Occurrences of PF ¬ > ∀x (CHILDES corpora)

PF ¬ > ∀x	Adult LF ¬ > ∀x	Child LF ¬ > ∀x
niet allemaal FQ strong	51	6
niet allebei/alletwee FQ	2	2
niet alles	48	6
niet alle NP	18	3
niet iedereen	2	1
niet elk(e) temporal NP	10	1
niet altijd	20	1
niet overal	2	0

Except for the number of occurrences, the properties are identical in adult and child Dutch.

There is a strict adjacency between *niet* and the quantifier for 96% (172/180). This goes against Hoeksema's (1999) idea that a merger between the two would not occur because the negative marker and the universal quantifier would be frequently non-adjacent. The non-adjacency may hold for English, but not for Dutch.

The quantifiers often have a collective reading, for instance when used with a modifier that makes the predicate in the attested occurrences collective, as *tegelijk* 16x ('at the same time'), P *elkaar* 5x ('each other'), *in 1 keer* 2x ('in one go'). See (19).

(19) a. Je kan niet alle dingen tegelijk.
you cannot not all things at the same time
'You cannot do all things at the same time.'

b. we kunnen niet alles tegelijk (doen). (4;04.10)
'we cannot do everything at the same time.'

c. het kan niet allemaal in één keer in je mond.
it cannot all in one go in your mouth
'you cannot put everything in one go in your mouth.'

Example (20) is an example of non-specific *elk* with a temporal NP.

(20) Het is niet elk weekend feest.
'It is not every weekend party time.'

I could not find examples of a clear distributive reading in the corpus. Crucially, all utterances with a pronominal quantifier fit the claim that they are not specific.

Summarizing, universal quantifiers under the scope of negation have a non-specific reading that is not logically equivalent with the specific reading of an existential quantifier having scope over negation in (11).

Let us now turn to the original puzzle of the differences between adults and children when a universal quantifier has scope over negation. Section 3 gives an overview of the attested examples with an isomorphic interpretation and it will tackle the question why blocking does not occur. Section 4 gives an overview of the attested examples with an inverse

scope interpretation and it will tackle the question why children deviate from the adult isomorphic interpretation, which follows the surface order.

3. Negation under the scope of a universal quantifier: isomorphic interpretation

3.1 The data in adult and child Dutch
Table 2 lists the adult and child examples.

Table 2. Occurrences of isomorphic PF ∀x > ¬ (CHILDES corpora)

PF ∀x > ¬	Adult LF ∀x > ¬	Child LF ∀x > ¬
allemaal niet FQ strong	41	5
allebei niet FQ	2	0
altijd niet	2	4
alles niet	1 (initial)	0
alle NP niet	4 (initial)	0
elk(e) temporal NP niet ieder(e) temporal NP niet	2 (initial) 2 (initial)	0 0

A comparison between the adult and the child data shows the following similarities. First, the logical interpretation is one of an empty set. Second, in sentence-internal position we find the floating quantifier *allemaal* and the adverb *altijd*. They are adjacent to *niet* in that position. See (21).

(21) a. Die we allemaal niet nodig hebben. (3;11.06)
those we all not need have
'We don't need any of them.'
b. Een rijgdraad is altijd niet zo sterk.
a basting thread is always not so strong
'A basting thread is never very strong.'

The most frequent ones are the floating quantifiers. This comes as no surprise, since the floating quantifiers have no lexicalized Neg+existential to replace them. I will come back to this in section 3.2.

Table 3 puts together the list in Table 2. It shows a crucial difference between adult and child Dutch in the right-hand column.

Table 3. Sentence-internal (adjacent to negation) and sentence-initial universal quantifiers

	adjacent: adult/child	initial: adult
Floating quantifiers	49	
altijd niet = *nooit*	6	
others		9

In the right-hand column, we find the number of quantifiers in sentence-initial position. Only attributive quantifiers followed by a noun (*alle NP*, *iedere/elke NP*) are of this type. There is 1 additional example of *alles* to which I will come back in section 3.2. The quantifier is

separated from *niet* that remains in sentence-internal position. Both subject and non-subject quantifiers are attested. See (22). The quantifier is rhetorically used for emphasis or reinforcement.

(22) a. Al die kinderen zijn nog steeds niet zindelijk.
'All those children are as yet not potty trained.'
b. Elke minuut die hij tv kijkt, kan hij niet spelen.
'Every minute that he watches tv, he cannot play.'
c. Alle koekjes ga je toch niet op de bank zitten kruimelen?
all cookies go you prt not on the coach sit crumble?
'You won't crumble your cookies on the couch, will you?'

The sentence in (23) is from my local charity shop. Without the quantifier it would express the same meaning in standard Dutch, but by adding the quantifier as a redundant emphatic marker, the manager wants to stress that there are really no exceptions.

(23) Alle artikelen zonder prijskaartje worden niet verkocht.
'All goods without price tag are not sold.'

Absolutely formulated generalizations as in (24) can be found on the internet. Such a generalization gets more plausible when a modifier like *bijna* ('almost') is added, which reduces the set of the quantified NP.

(24) (Bijna) alle kinderen houden niet van huiswerk.
(almost) all children like not homework
'(Almost) all children don't like homework.'

The subsequent question is why the ∀x > ¬ occurrences with interpretation of an empty set is not blocked by a lexicalized NEG+existential.

3.2 No blocking by a lexicalized NEG+existential

In general, a more complex, periphrastic construction gets blocked by a morphological or lexicalized construction if both are logically equivalent. It works for the blocking of *alles…niet* by the lexicalized Neg+existential *niets*. Why then are the occurrences in the previous section not blocked by a lexicalized Neg+universal?

The answer is that there exist no simple Neg+existential to block the attested occurrences of ∀x > ¬. In all cases the replacement would be a periphrastic ¬ > ∃x *geen van de NP* ('none of the NP') or *geen enkele NP* ('not a single NP'). Table 4 lists the occurrences of both types of periphrastic constructions.

Table 4. Periphrastic constructions of LF ∀x > ¬ (A=adult C=child)

allemaal niet FQ	geen van alle(n)	allebei niet FQ	geen van beiden	alle NP niet	geen van de NP	elke/iedere NP niet	geen van de/enkel(e) NP
41A + 6C adjacent	**1A**	2A adjacent	0	4A initial	0	4A initial	0

The number of sentence-internal floating quantifiers is quite high, but there are not many instances of sentence-initial quantifiers. Only 8 examples, plus 1 *alles…niet* are found in the corpus. The low occurrence of the *all…not* type has also been reported for English. A search of *all…not* constructions in the British National Corpus by Neukom-Hermann (2016) delivered only 5 instances per million words. The construction is probably more frequent in informal language spoken between adults. I hear it regularly in talk shows at the Dutch tv.

However, the crucial observation here is that the alternatives *geen van DP* or *geen enkele NP* are (almost) absent. The use of a sentence-initial quantifier separated from the negative marker may be preferred because the fronted quantifier gets the full emphatic attention. Fronting the negative construction *geen van DP* or *geen enkele NP* seems to be restricted. Negated subject arguments can appear in sentence-initial position, but non-subject constituents are degraded in that position.

(25)	??Geen van de koekjes	ga je	toch	op de bank	zitten kruimelen?
	none of the cookies	go you	prt	at the coach	sit crumble?

There are some exceptions to the fact that there is no lexicalized Neg+existential available. The quantifiers *altijd* and *alles* followed by *niet* should be blocked by *nooit* (‘never’), respectively *niets/niks* (‘nothing’). However, it concerns only a few occurrences: *altijd niet* 5 times and *alles niet* 1 time. These rare appearances contrast sharply with the occurrences of *nooit* (492A, 61C) and *niets*/*niks* (1070A, 331C) in the corpus. Moreover, in the attested cases *niet* is followed by a predicate adjective: *altijd* [*niet* Adj] and *alles* [*niet* Adj]. The construction positions *niet* in front of the focused adjective, *sterk* in (21b), *wit* in (26), that is to be excluded (Zifonun et al. 1997: 1587).

(26)	Alles	is	niet	meer	wít,	maar	nu	weer	groen.
	everything	is	not	anymore	white,	but	now	again	green

In (26) *niet wit* has a contrastive interpretation and is followed by *weer groen*.

4. Negation under the scope of a universal quantifier: inverse scope interpretation

4.1 The data in child Dutch and Dutch dialects

Most of the occurrences of a universal quantifier followed by negation in child Dutch have the inverse scope interpretation, unlike the standard Dutch input. They are listed in Table 5. Next to the corpus data, additional data, indicated separately, come from diary notes.

Table 5. Occurrences of inverse scope ∀x > ¬ ≡ ¬ > ∀x (CHILDES corpora)

PF ∀x > ¬	Child LF ¬ > ∀x
allemaal niet FQ strong	1
allebei niet FQ	3 (incl. 1 diary)
alles niet	5 (incl. 1 diary)
alle DP niet	6 (incl. 4 diary)
iedereen niet	2 (incl. 1 diary)
elk(e) temporal NP niet	1

The floating quantifier *allebei* is attested two times in sentence-internal position. All other quantifiers appear in sentence-initial position separated from negation. See the examples in (27). Both subject and non-subject quantifiers appear in that position.[2]

(27)	a.	Alles	is	niet gelijk.				4;07.24
		everything	is	not equal				
	b.	Allebei	hebben	we	geen tanden eruit.			6;08.18 (diary)
		both	have	we	no teeth out			
	c.	Iedereen	had	z'n taak	niet	af.		8;10.14 (diary)
		everybody	had	his task	not	finished		
	d.	Elke woensdag		heb ik niet	iets	meegenomen.		4;07.13
		every Wednesday		have I not	something	taken with me		

From the discourse context it was clear that the quantifiers in (27) have a distributive reading. They refer to individuals/things that are already familiar to the child, i.e. belong to its social and cognitive environment. For (27a) the child compared the pictures of Aladdin in her coloring book with the pictures of Aladdin in the film. (27b) was uttered by a girl that was already changing teeth, whereas her friend still had all her baby teeth. (27c) implied that some pupils, Sofie and Peter, hadn't finished their assignment. With (27d) the child had specific Wednesdays in mind she didn't take something with her.

The inverse scope interpretation has also been attested in Dutch dialects, but without the distributive reading. The sentence in (28a) with a generic reading comes from the SAND database (Barbiers et al. 2008). Many participants to the corpus accepted the sentence in their dialect. Example (28b), which I heard at a parking area, has a collective reading.

(28)	a.	Iedereen	is geen	vakman.		
		everybody	is not	a professional		
		'Not everybody is a professional.'				
	b.	Iedereen	weet niet	dat	hier	parkeerplaatsen zijn.
		everybody	knows not	that	here	parking places are
		'Not everybody knows that there are parking places here.'				

In standard Dutch the surface scope order would be *niet iedereen*. In the examples in (28) *iedereen niet* is logically equivalent to non-specific *sommigen niet*.

4.2 Why inverse scope in child Dutch?

A next question is why the child has the inverse scope interpretation without input from the adult speakers of standard Dutch. This is not what one would expect, given that the isomorphic interpretation follows the surface order, available for the child. I can think tentatively of the following explanation.

Dutch children do use the ∀x > ¬ order sometimes with an isomorphic interpretation as in example (21a). The only difference between adults and children lies in the interpretation

[2] I could not unambiguously determine the logical interpretation of 5 occurrences in the Wijnen corpus (Wijnen 1997). They all have an identical *alle* NP *niet* pattern and occur sentence-internally. I leave them out of the discussion here.

when the quantifier is sentence-initial. The adult utterances in (22) have an isomorphic interpretation, whereas the child utterances in (27) have an inverse scope reading. However, the utterance in (21a) differs crucially from the ones in (22). Without the quantifier, the utterances in (22) would have the same meaning, but lack the rhetoric effect. The quantifier is in that case added for reinforcement or even exaggeration. That effect is crucial for the interpretation of *alle* in *alle NP* scoping over negation as a redundant marker indicating an empty set. It may be that children at the relevant age do not pick up the intention of the adult speaker. This is just a suggestion. There is at yet no study that investigates the child's understanding of such rhetoric effects.

Something else may influence the Dutch child's inverse scope interpretation of the *alle…NP* constructions. When the universal quantifier is adjacent to negation, the interpretation is isomorphic. That holds for ¬ > ∀x in (18) and for ∀x > ¬ in (21). The sentence-internal occurrences of periphrastic ∀x > ¬ are restricted to the floating quantifiers. The other occurrences of ∀x > ¬ get blocked by a Neg+existential and there is an overwhelming evidence for it. The sentence-initial quantifiers in (22) are separated from negation by the finite verb. The evidence that the two may appear separated from each other and still have the interpretation of an empty set is rare. In absence of a blocking effect, the child might interpret the *alle…niet* constructions as ¬ > ∀x for which no lexicalized **nalle(s)* is available.

5. Conclusion

The production of universal quantifiers with negation in the CHILDES database of Dutch shows several scopal properties that have not been discussed before.

A universal quantifier under the scope of negation at PF is commonly analyzed as being logically equivalent to an existential quantifier having scope over negation. However, this does not hold uniformly. When the existential pronoun with surface scope ∃x > ¬ has a specific reading it is incompatible with the non-specific reading of the universal pronoun with surface scope ¬ > ∀x. This might explain the non-existence of a lexicalized Neg+universal. Although *niet* and the quantifier are mostly adjacent in the corpus, which might favor the lexicalization, such lexicalized Neg+universal would have the undesirable effect to block all logical ∃x > ¬ interpretations, collective and specific, without making a distinction between *iéts niet* and *niet alles*.

Negation under the scope of a universal quantifier ∀x > ¬ shows different interpretations in adult and in child Dutch. In adult Dutch it has an isomorphic interpretation of an empty set. In child Dutch the interpretation is mostly one of inverse scope. I have suggested two possible explanations for the different reading of the children. First, Dutch children might not pick up the intended rhetoric effect. Second, since paraphrastic ∀x > ¬ gets almost always blocked by a lexicalized Neg+existential, the children might not interpret isomorphic *all…not* as indicating an empty set.

Several questions concerning the learnability of ∀x > ¬ constructions have not been addressed in this paper. If primary school children still allow an inverse scope reading, witness the examples in (27), will standard Dutch develop into a language that allows both interpretations? And how did the child find out in the first place that negation can have logical scope over the sentence-initial quantifier without input evidence? These learnability questions would largely profit from the publication of new longitudinal corpora from children > 4 years.

References

Barbiers, Sjef, Johan van der Auwera, Hans Bennis, Eefje Boef, Gunther de Vogelaer, Margreet van der Ham. 2008. *Syntactic Atlas of the Dutch Dialects: Volume II (SAND)*. Amsterdam University Press.

Baunaz, Lena. 2011. *The Grammar of French Quantification*. Heidelberg: Springer.

Beghelli, Philippo & Tim Stowell. 1997. "Distributivity and negation: The syntax of each and every." *Ways of Scope Taking* ed. by Anna Szabolcski, 71-107. Dordrecht: Kluwer.

Broekhuis, Hans & Marcel den Dikken. 2012. *Syntax of Dutch. Nouns and Noun Phrases Volume 2.* Amsterdam University Press.

Crain, Stephen. 2017. "Acquisition of quantifiers." *Annual Review of Linguistics* 3: 291-243.

Hoeksema, Jack. 1999. "Blocking effects and polarity sensitivity." *JFAK: Essays dedicated to Johan van Benthem on the occasion of his 50th birthday* ed. by Jelle Gerbrandy, Maarten Marx, Susan Gelman & Jon Star, 1-15. Amsterdam University Press.

Horn, Laurence. 1972. "On the semantic properties of logical operators in English." PhD diss., UCLA.

Huijbregts, Riny. 1979. "De biologisch kern van taal." *Verkenningen in taal* ed. by Riny Huybregts & Louis des Tombe, 97-189. Instituut A.W. de Groot voor Algemene Taalwetenschap, Utrecht.

Kontinen, Juha & Jakub Szymanik. 2008. "A Remark on Collective Quantification." *Journal of Logic, Language and Information* 17(2): 131-140.

Neukom-Hermann, Anja. 2016. "Negation, quantification and scope. A corpus study of English and German all...not constructions." PhD diss., University of Zürich.

MacWhinney, Brian. 2015. *The CHILDES Project: Tools for Analyzing Talk*, 3rd edition. Mahwah NJ: Lawrence Erlbaum Associates

Wouden, Ton van der. 1996. "Hoeven." *TABU* 26: 164-182.

Wijnen, Frank. 1997. "Functionele categorieën in Nederlandse kindertaal." *Nederlandse Taalkunde* 3: 178-198.

Zeijlstra, Hedde (2004) "Sentential negation and negative concord." PhD diss., Universiteit van Amsterdam.

Zifonun, Gisela, Ludger Hoffman & Bruno Strecker. 1997. *Grammatik der deutschen Sprache*. Berlin: de Gruyter.