Negative Concord without Agree: Insights from German, Dutch, and English child language

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Syntax Kolloquium, Goethe-Universität Frankfurt am Main, 12.03.2023

(joint work with Johannes Hein, Cory Bill, Aurore Gonzalez, Ivona Ilić, Paloma Jeretič & Astrid van Alem)

Introduction

Negative indefinites across languages

In Negative Concord (NC) languages, negated indefinites are expressed via sentence negation and a morphologically marked indefinite – a so called negative concord item (**NCI**).

(1) **Nikdo** **ne**-volá. *Czech*
nobody NEG-call
'Nobody calls.' (Zeijlstra 2004)

(2) Balász **nem** látott **semmit**. *Hungarian*
Balász not saw nothing
'Balász didn't see anything.' (Giannakidou and Zeijlstra 2017)

Negative indefinites across languages

Non-NC languages also use morphologically marked indefinites, but without the presence of sentence negation – so called negative indefinites (**NIs**).

(3) **Kein** Student hat die Prüfung bestanden. *German*
no student has the exam passed
'No student passed the exam.' (Penka 2020)

This talk: Children learning non-NC languages produce NC sentences!

(4) **Kein** Teller kann s **net** sein. *child German*
no plate can it not be
'It can't be a plate.' (Sebastian 5;04, Lieven and Stoll 2013)

Outline

- We present a corpus study investigating the acquisition of negative indefinites in 3 non-NC languages: English, German, Dutch.
- Main insight: Children learning non-NC languages produce NC utterances.
- We will adopt the Meaning First framework (Sauerland and Alexiadou 2020, Guasti et al. 2023) to account for the NC errors children make.
- In doing so, we propose a new morphological account of Negative Concord.
- We discuss additional advantages of the new account wrt. to standard syntactic AGREE approaches to NC.

Previous acquisition work

Comprehension: A preference for negative concord

Children (3;6–6;5) acquiring English or German strongly favour a single negation interpretation with sentential negation and NI (Thornton et al. 2016, Nicolae and Yatsushiro 2020).

(5) Der Hase hat kein Gemüse nicht gegessen. *German*
The rabbit has no vegetable not eaten.
'The rabbit ate not vegetables.'

Children (4;6–6;3) acquiring Italian (non-strict NC) prefer a single negation interpretation in fragment answers where adults favour a double negation interpretation (Moscati 2020).

(6) Chi non è venuto? Nessuno.
who NEG is come nobody
'Who didn't come? Nobody.' = nobody didn't come = everybody came

Production: A preference for negative concord

- Miller (2012): corpus study on Sarah (Brown corpus, MacWhinney 2000) exposed to negative concord in parental speech; produced NC utterances
- Thornton and Tesan (2013), Thornton et al. (2016): corpus study on Adam (Brown corpus, MacWhinney 2000); produced NC utterances but parents did not
- Nicolae and Yatsushiro (2020): corpus study on Leo (Leo corpus, Behrens 2006) in German; produced NC utterances but parents did not

Corpus study

Corpora

German:

- 43 children (from Caroline, Grimm, Leo, Manuela, Miller, Rigol, Stuttgart, Wagner)
- age range = 0–14;10; number of utterances = 363 028 (338 407 $\leq$ 7;10)

Dutch:

- 40 children (from Asymmetries, BolKuiken-TD, Gillis, Groningen, Schaerlaekens, SchlichtingVanKampen, Utrecht, van Kampen, Zink)
- age range = 1;09–5;06; number of utterances = 220 617

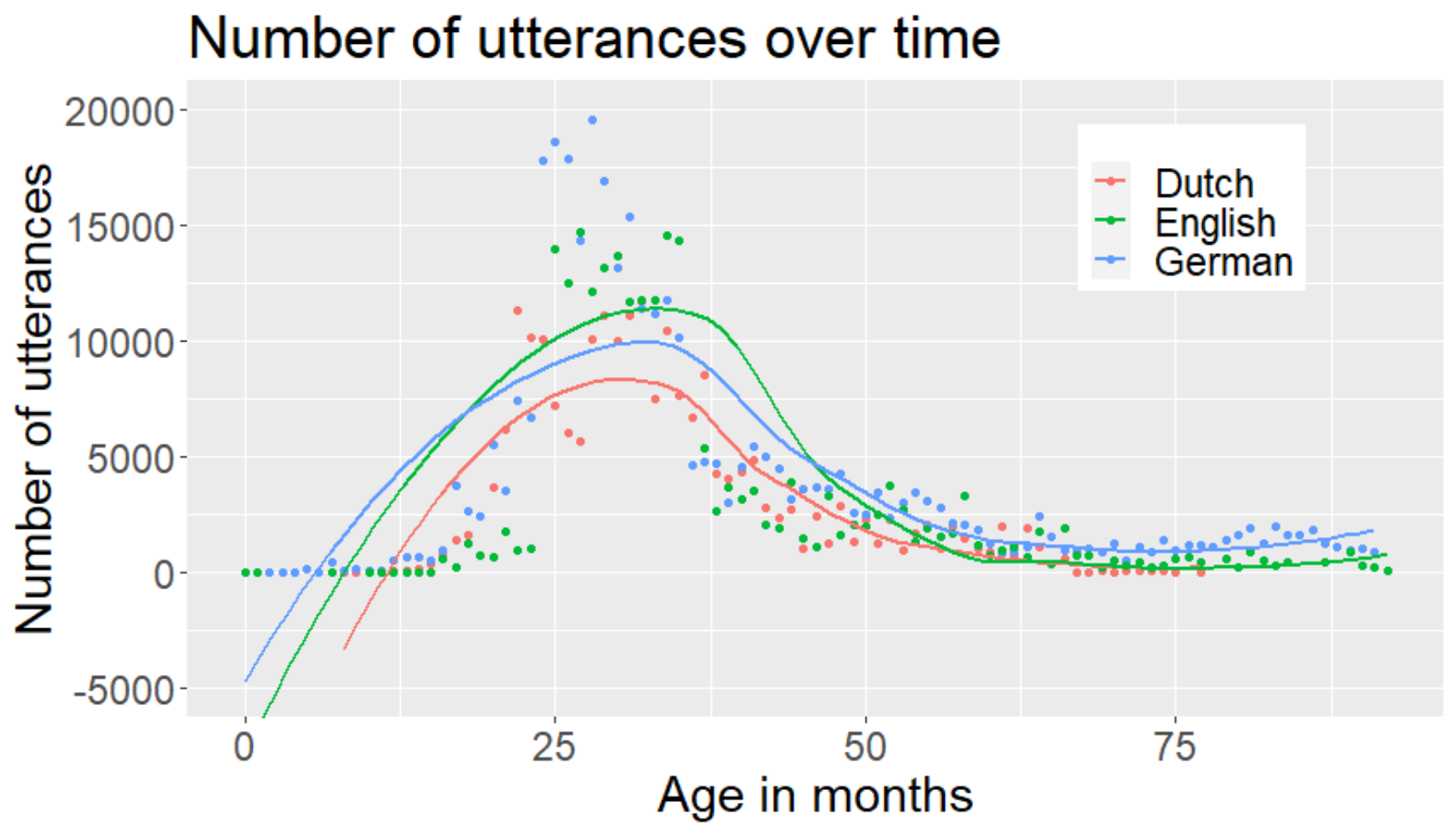
English:

- 6 children (from Brown, MacWhinney, MPI-EVA-Manchester), 4 North American, 2 UK
- age range = 0;7–7;10; number of utterances = 328 972

Sarah (Brown corpus) was excluded as her input matched a NC dialect of English.

Utterance distribution

The distribution of utterances across age is very similar in English, Dutch and German.



Procedure

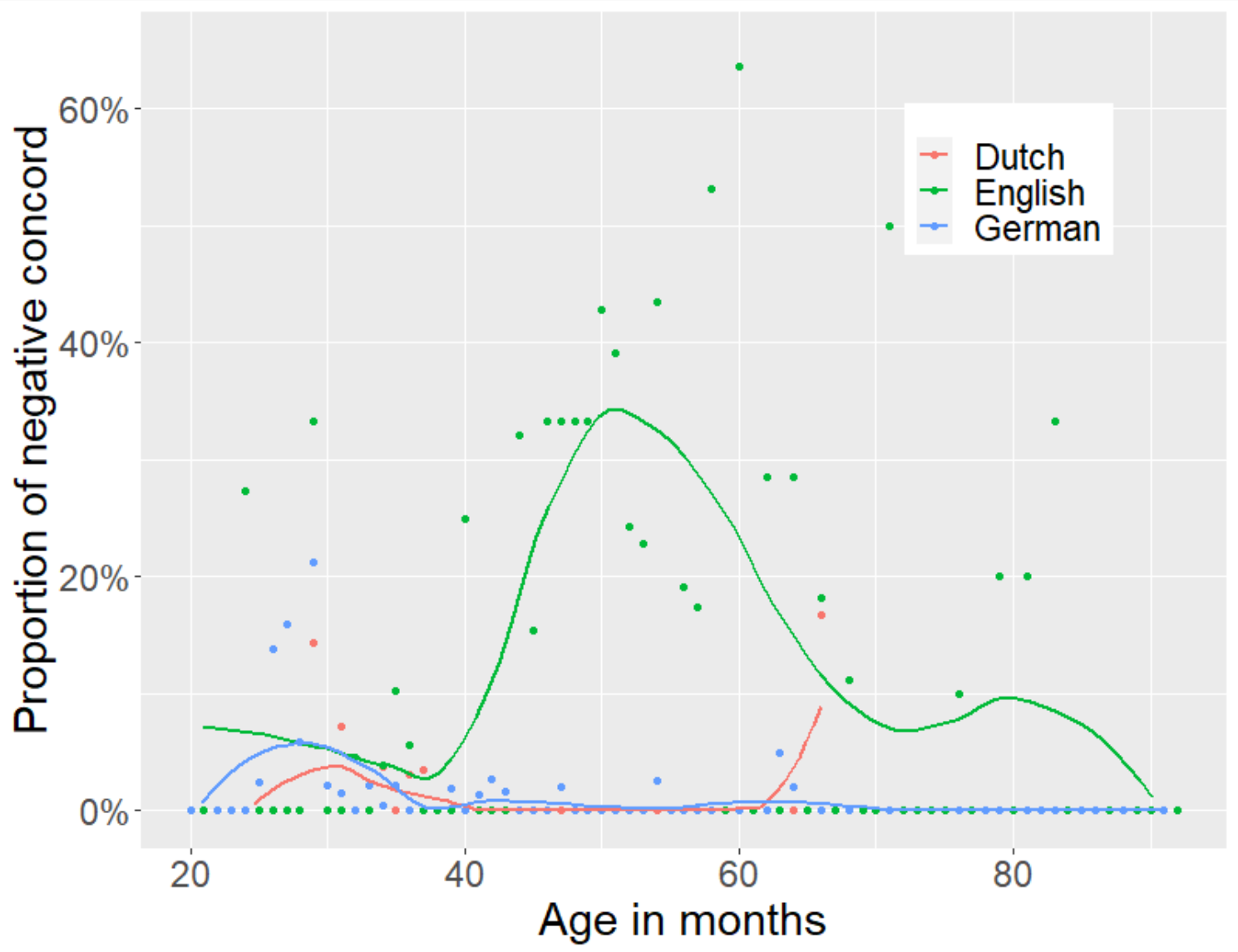
- We extracted all child utterances that contained at least one negated indefinite (*no, nobody/no-one, nothing, never*; *kein, niemand, nichts, niemals*; *geen, niemand, niets, nooit*) $\rightarrow$ English $N = 2548$, German $N = 3917$, Dutch $N = 1177$.
- We tagged each utterance
  - for the type of NI,
  - for the presence of negative concord
  - whether the NI was preverbal (excluding independently V-final tokens in German/Dutch) or postverbal (excluding independent N-V inversions as in e.g. questions)
  - whether negation was *n't* or *not* in English
- We excluded fragment answers and mistaggings $\rightarrow$ English $N = 909$, German $N = 3106$, Dutch $N = 857$
- Annotations were done by native speakers.

Negative concord errors

	Utterances with NC	Utterances with NI	proportion of NC
English	184	909	20.2%
German	45	3106 (2664 $\leq$ 92m)	1.5% (1.7%)
Dutch	6	857	0.7%

(Since we did not have any English data beyond the age of 92 months, we only consider German utterances up to that age and ignore utterances produced by older children.)

Negative concord errors over time



Negative concord errors: Some examples

(7) a. We don't want no gas. (Adam 3;11, Brown 1973)

b. I don't care about nothing. (Ross 5;04, MacWhinney 1991)

c. No one's not drying him, mum. (Fraser 3;00, Lieven et al. 2009)

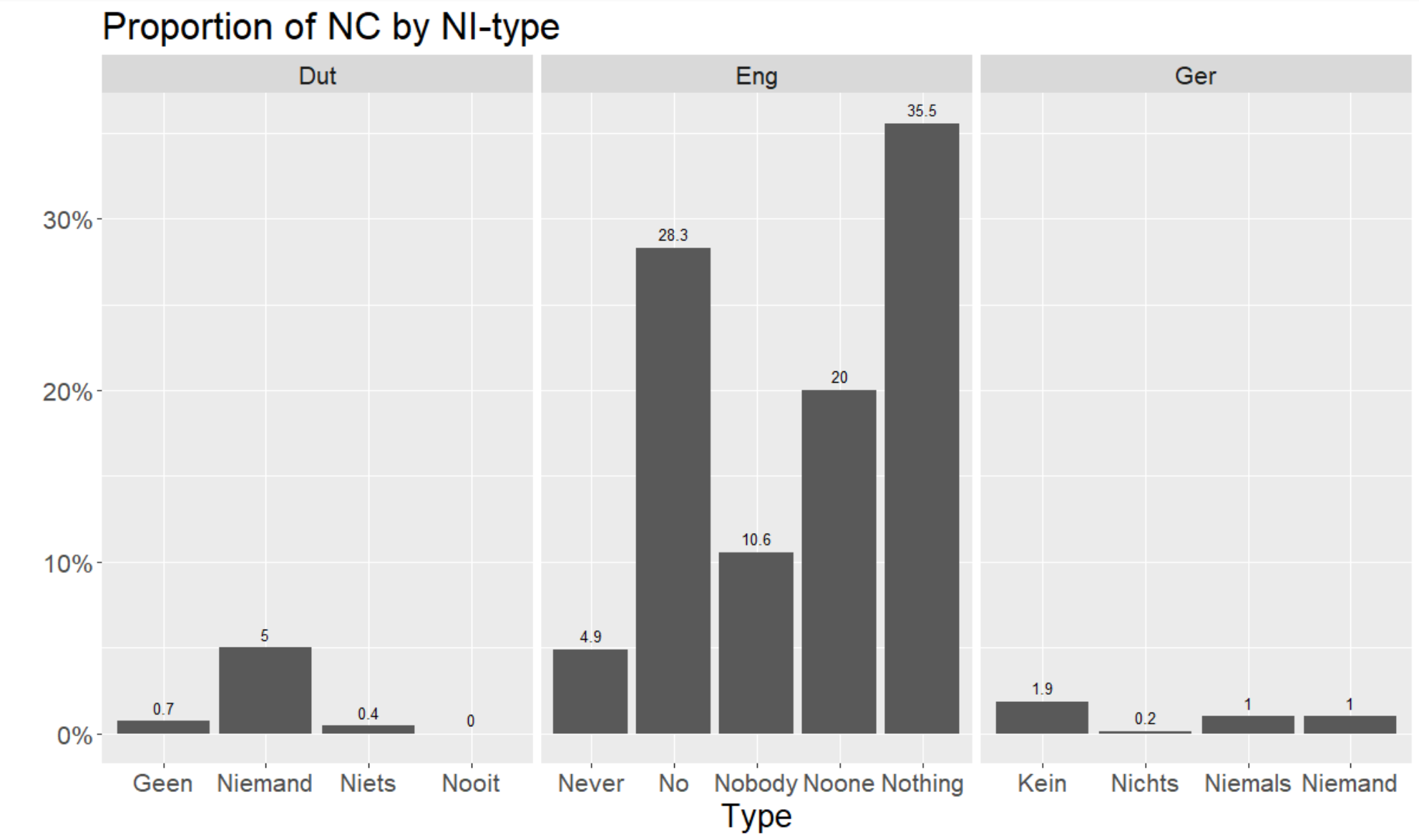
(8) a. Kein Gewitter kommt nicht heute. *child German*
no thunderstorm comes not today
'There's no thunderstorms coming today.' (Leo 2;03, Behrens 2006)

b. Wir haben noch keine Zudecke nich.
we have yet no duvet not
'We don't have a duvet yet.' (Simone 3;07, Miller 1979)

(9) a. En Rosa mag niet geen spelletje. *child Dutch*
and Rosa may not no game.DIM
'And Rosa may not play a game.' (Daan 3;00, Wijnen and Verrips 1998)

b. Heeft Arnold niet geen hamer.
has Arnold not no hammer
'Arnold doesn't have a hammer.' (Diederik 2;10, Schaerlaekens 1973)

Errors with different types of NIs



A more detailed look at Adam (Brown corpus)

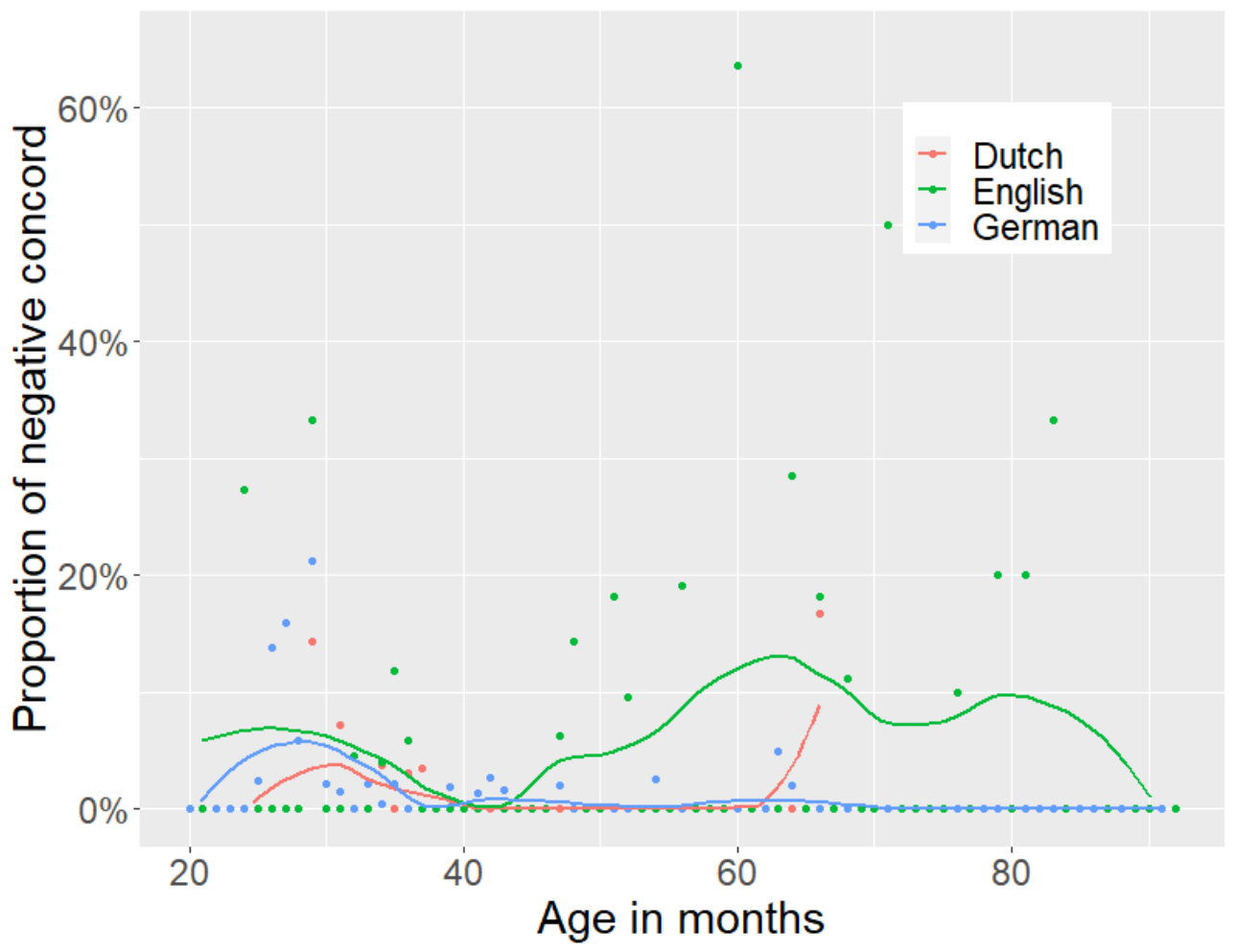
One child in our child English data has from time to time been discussed in the literature on NC:

- Adam (Brown corpus) is African-American but the notes on CHILDES explicitly state that he was acquiring Standard American English rather than African American English (which shows optional NC).
- We initially included Adam's data since there is no evidence of the care-givers producing NC utterances.
- Robinson (2022: 62,fn.3): *"As for Adam, there is no evidence in the corpus to suggest that his parents produced NC tokens in their child-directed speech. However, as Adam is African-American, it is possible he heard NC tokens from his extended family or from African-American peers."*

A more detailed look at Adam (Brown corpus)

	Utterance count			
Language	total	with NI	with NC	Proportion
English (all)	328,972	909	184	20.2 %
English (w/o Adam)	283,399	666	53	8.0 %
German	338,407	2665	45	1.7 %
Dutch	220,617	857	6	0.7 %

Negative concord errors over time (without Adam)



We attribute the additional and later peak of NC errors for child English to the struggle to distinguish NIs and NPIs, e.g. *no-one* vs. *anyone* (Davidson 2020, Illingworth et al. 2022).

Previous work on negative concord

Syntactic Agree account of NC languages

A standard way to account for strict NC patterns is by an AGREE-operation which takes place between a (covert) NEG-operator and the NCI (Zeijlstra 2004):

(10) a. Dnes nikdo ne-volá nikoho. *Czech*
today nobody NEG-call nobody
'Today nobody calls anybody.' (Giannakidou and Zeijlstra 2017)

b. $Op_{[i\text{Neg}]}$ Dnes $\text{nikdo}_{[u\text{Neg}]}$ $\text{ne}_{[u\text{Neg}]}$-volá $\text{nikoho}_{[u\text{Neg}]}$

Only [*i*Neg] features are interpreted → single negation reading with one (and also more than one) NI + sentence negation.

Syntactic Agree account of non-NC languages

A non-NC language has been argued to have the same underlying structure, but with modified AGREE-features and a ban on Multiple AGREE (Penka 2007, 2011).

(11) a. ... dass niemand kein Auto hat. *German*
that nobody no car has
'that nobody has no car' = everybody has a car (Penka 2007: 277)

b. dass $Op_{[i\text{Neg}]}$ niemand$_{[u\text{Neg}]}$ $Op_{[i\text{Neg}]}$ kein$_{[u\text{Neg}]}$ Auto hat

Hence, each NI has to be licensed by its own covert NEG-operator → double negation reading with multiple NIs.

Syntactic Agree account of non-NC languages

Additionally, a diacritic has to be introduced because an NI cannot simply be licensed by overt sentence negation. So, [*u*Neg∅] feature can only be valued by an [*i*Neg∅] feature (Penka 2007, 2011).

(12) a. ... dass ich nicht nichts gegessen habe. *German*
that I not nothing eaten have
'that I didn't eat nothing' = that I ate something (Penka 2011)

b. dass ich nicht$_{[i\text{Neg}]}$ nichts$_{[u\text{Neg}\emptyset]}$ gegessen habe
✗

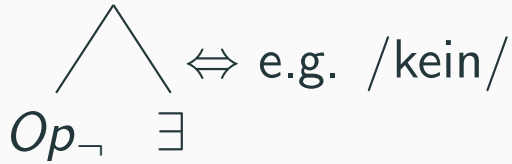
c. dass ich nicht$_{[i\text{Neg}]}$ *Op*$_{[i\text{Neg}\emptyset]}$ nichts$_{[u\text{Neg}\emptyset]}$ gegessen habe

The addition of the diacritic derives double negation readings for one NI + sentence negation.

QR account of non-NC languages

Zeijlstra (2011) argues that NIs in languages like German and Dutch are in fact quantifiers.

(13) *NIs in non-NC languages as negative quantifiers*



NIs undergo QR in syntax. Partial copy interpretation leads to negation taking sentential scope and the indefinite taking narrow scope.

(14) a. Subject Verb [$Op_{\neg}$-∃-Object] *step 1: QR*

b. [$Op_{\neg}$-~~∃-Object~~] Subject Verb [~~$Op_{\neg}$~~-∃-Object] *step 2: LF*

c. [~~$Op_{\neg}$-∃-Object~~] Subject Verb [$Op_{\neg}$-∃-Object] *step 2: PF*

Higher copy deletion on PF leads to non-NC pattern.

Predictions for acquisition of non-NC languages

Why do children learning non-NC languages produce some NC utterances?

AGREE account:

- At least for English, Thornton and Tesan (2013) argue that there is some evidence that NEG is a head (e.g., head movement in questions).
- Thus, children could hypothesize *n't* is a head and enters Agree with NIs; see also Thornton et al. (2016) who argue that children acquiring English go through an NC stage.
- Problem I: There is no such evidence for German and Dutch (see also discussion in Nicolae and Yatsushiro 2020).
- Problem II: We have not seen evidence for an NC phase. Rather NC utterances are produced alongside target utterances.

Predictions for acquisition of non-NC languages

Why do children learning non-NC languages produce some NC utterances?

QR account:

- Zeijlstra (2011) does not discuss acquisition data.
- But one way to account for NC utterances is by erroneous copy deletion:

(15) a. [~~*Op*¬-∃-Object~~] Subject Verb [*Op*¬-∃-Object] *Adult PF*
b. [*Op*¬-~~∃-Object~~] Subject Verb [*Op*¬-∃-Object] *Child PF*

- Problem: This account would overgeneralize. We would also predict the following errors which we did not find in the corpus study.

(16) a. [~~*Op*¬~~-∃-Object] Subject Verb [*Op*¬-∃-Object] *Child PF*
Something Peter saw nothing.
b. [*Op*¬-∃-Object] Subject Verb [*Op*¬-∃-Object] *Child PF*
Nothing Peter saw nothing.

Further problems with syntactic Agree accounts of NC

For NC grammars, a syntactic AGREE account requires an additional stipulation for the presence of sentence negation, as it is not necessary to make the derivation converge (see also discussion in Penka 2020).

(17) a. Dnes nikdo ne-volá nikoho. *Czech*
today nobody NEG-call nobody
'Today nobody calls anybody.' (Giannakidou and Zeijlstra 2017)

b. *Op*$_{[i\text{Neg}]}$ Dnes nikdo$_{[u\text{Neg}]}$ **ne**$_{[u\text{Neg}]}$-volá nikoho$_{[u\text{Neg}]}$

c. **Op*$_{[i\text{Neg}]}$ Dnes nikdo$_{[u\text{Neg}]}$ volá nikoho$_{[u\text{Neg}]}$

Further problems with syntactic Agree accounts of NC

A syntactic AGREE account requires several non-trivial extensions such as Upward AGREE, Multiple AGREE, and diacritics on AGREE features.
(Also the QR account requires partial interpretation)

(18) *NC grammar (Czech)*

a. $Op_{[i\text{Neg}]}$ Dnes nikdo$_{[u\text{Neg}]}$ ne$_{[u\text{Neg}]}$-volá nikoho$_{[u\text{Neg}]}$

(19) *Non-NC grammar (German)*

a. dass ich nicht$_{[i\text{Neg}]}$ nichts$_{[u\text{Neg}\emptyset]}$ gegessen habe

b. dass ich nicht$_{[i\text{Neg}]}$ $Op_{[i\text{Neg}\emptyset]}$ nichts$_{[u\text{Neg}\emptyset]}$ gegessen habe

Further problems with syntactic Agree accounts of NC

A syntactic AGREE account has no handle on why negative morphology specifically appears with *indefinites*. In other words, why do we never see negative morphology with *definite* determiners?

Proposal

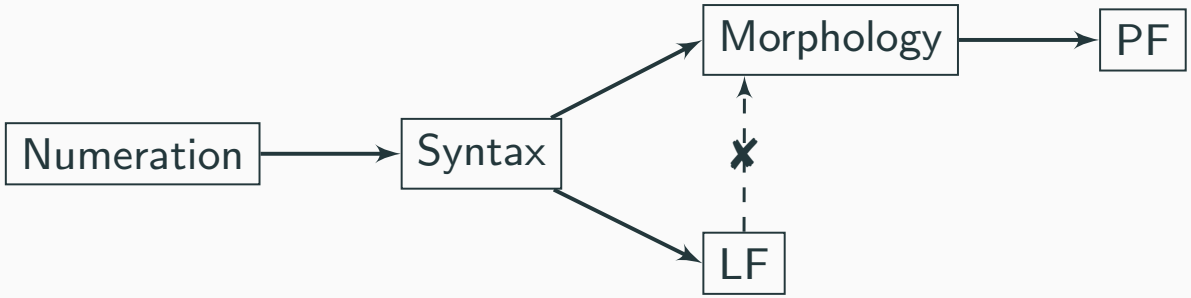
Background

We will adopt the Meaning First framework.

- When children produce more material than predicted by the target language, the additional material reveals pieces of the underlying conceptual representation.
- A semantics-morphology interface: Meaning feeds morphology.

(20) *Meaning First model of grammar* (cf. Sauerland and Alexiadou 2020, 2021)

(21) *Y-model of grammar* (Chomsky 1981, 1995, Halle and Marantz 1993)



Conceptual structure

Decompose if you can!

- Non-NC grammars share the underlying structure with NC grammars: negated indefinites like German *kein* are decomposed into NEG-OP + indefinite determiner (see also Jacobs 1980, von Stechow 1993, Penka 2007, 2011).
- Indefinite determiners are choice functions (functions that take a property as an argument and return an individual of that set) which must be existentially bound at the sentence level (Reinhart 1997, Winter 1997, Kratzer 1998).

(22) *(Negated) indefinites as choice functions:*[1]

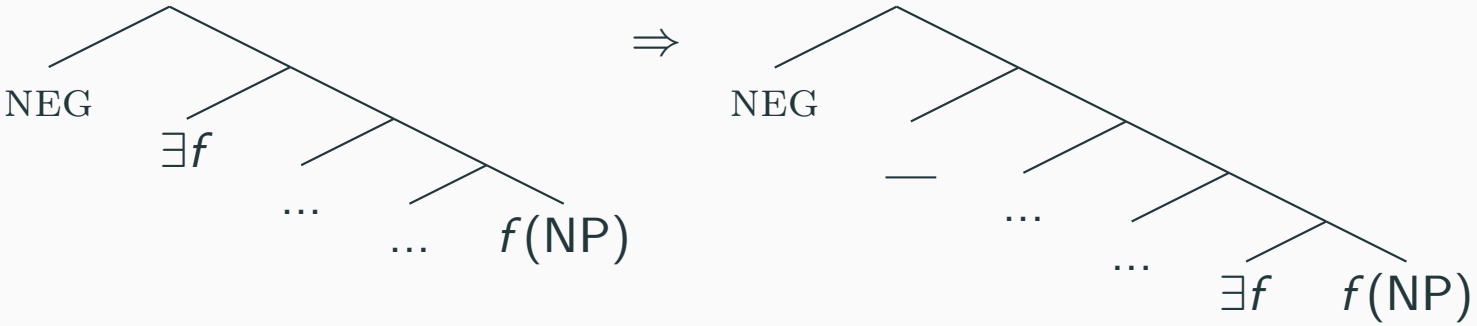
[1] This in-situ analysis aligns in spirit with many other, mostly semantic, NC accounts (Ladusaw 1992, Acquaviva 1993, Giannakidou 1998, Giannakidou and Quer 1997, Déprez 2000, etc.).

Bundling

Semantic dependencies in Meaning First:

- Given the Meaning First architecture, we predict that semantic dependencies such as $\exists f \ldots f(\text{NP})$ can be made reference to by the morphosyntax.
- We assume that $\exists f$ is realized by the indefinite determiner, and propose a bundling rule which ensures that it is pronounced in the position of the variable.

(23) *Bundling:*



Negative Concord is reduplication

Idea:

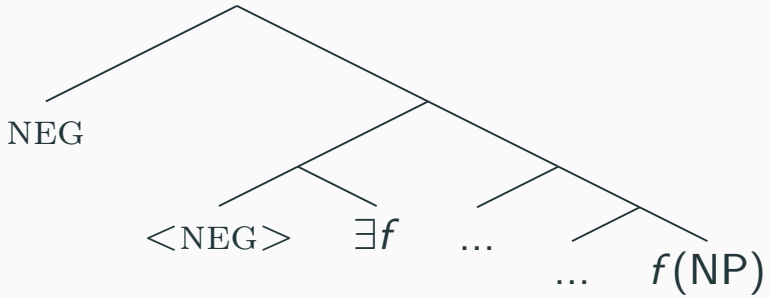
- Negated indefinites (NCI/NI) are the result of a duplication rule of NEG in the local context of an existential.[2]
- Adult non-NC grammars have an additional deletion/obliteration rule for NEG (Arregi and Nevins 2007, 2012).[3] Adult NC grammars do not.

(24) *Compressor rules / morphological rules*

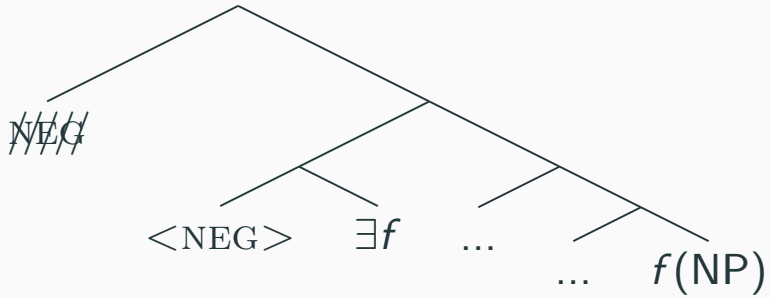
a. NEG-duplication: $\varnothing \longrightarrow \text{NEG} \;/\; \text{NEG}\ [\ \_\_\ \exists$

b. NEG-deletion: $\text{NEG} \longrightarrow \varnothing \;/\; \_\_\ [\ \text{NEG}\ \exists$

(25) a. NEG-*duplication:*



b. NEG-*deletion:*



[2] See also enrichment rules proposed in Müller (2007).

[3] See also Weiß (2004) for Standard German.

Grammars

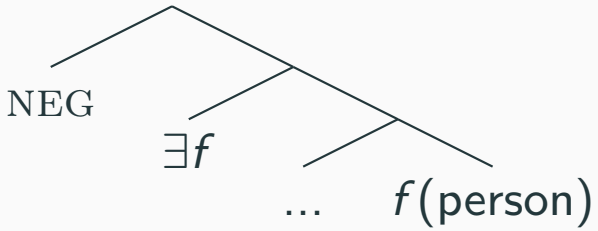
Adult NC grammars are distinguished from adult non-NC grammars by the availability of the NEG-deletion rule:

- Adult NC grammar: NEG-duplication $\prec$ bundling
- Adult non-NC grammar:
  NEG-duplication $\prec$ NEG-deletion $\prec$ bundling

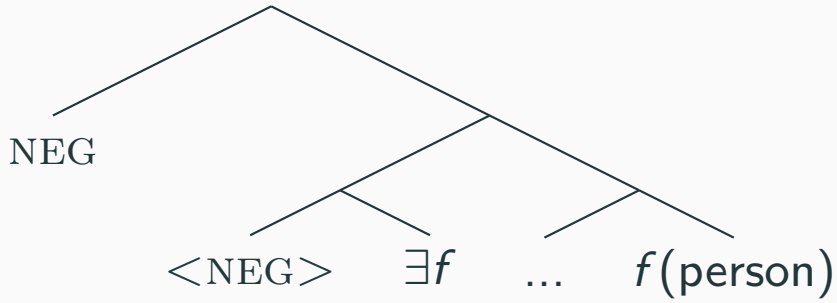
Adult non-NC grammar (neg-dupl < neg-del < bundling)

(26) Ik heb niemand gezien. *Dutch*
I have n-person seen
'I haven't seen anybody.'
(van der Auwera and Alsenoy 2018: 117)

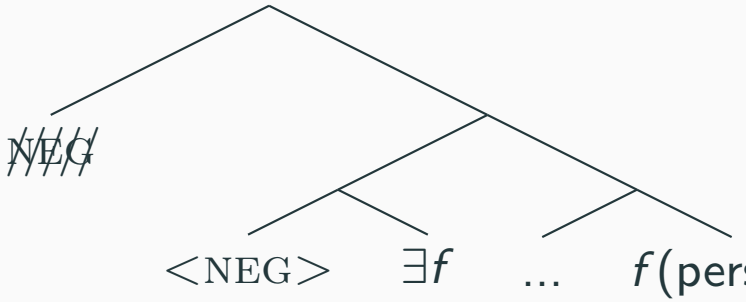
(27) *Step 0: input to morphology*



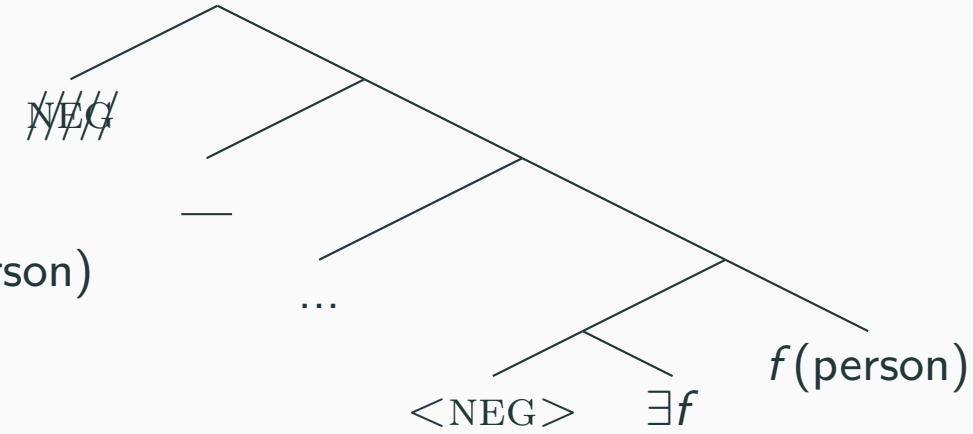
(28) *Step 1: duplication*



(29) *Step 2: deletion*



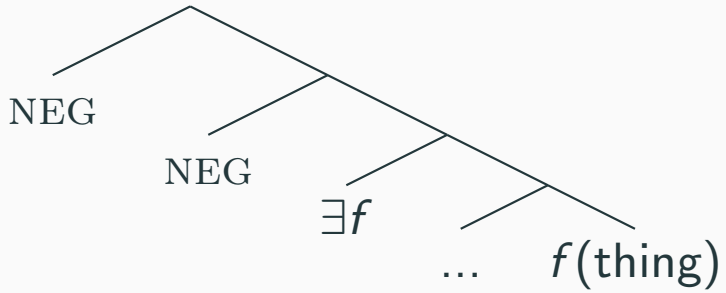
(30) *Step 3: bundling*



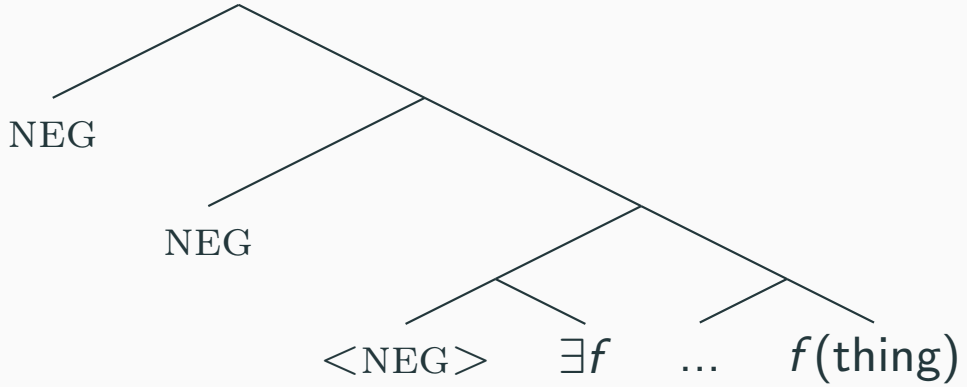
Adult non-NC grammar and double negation reading

(31) Ik heb niet niets gezegd. *Dutch*
I have not n-thing said
'I haven't said nothing.' (I have said something) (Giannakidou and Zeijlstra 2017)

(32) *Step 0: input to morphology*



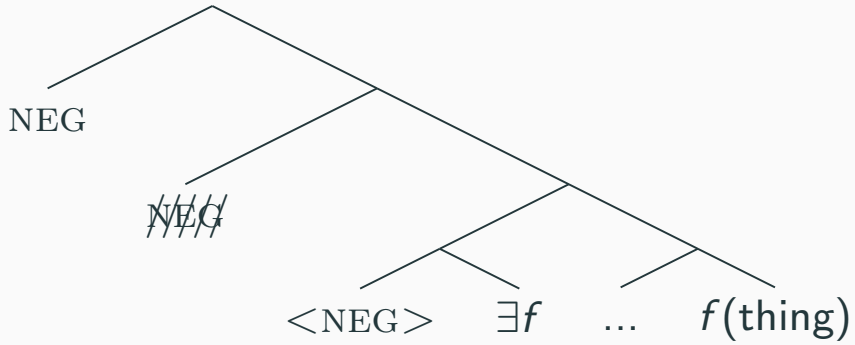
(33) *Step 1: duplication*



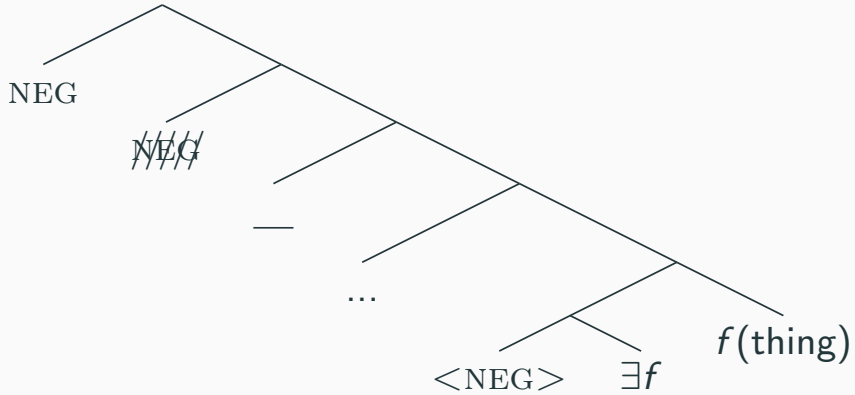
Adult non-NC grammar and double negation reading

(34) Ik heb niet niets gezegd. *Dutch*
I have not n-thing said
'I haven't said nothing.' (I have said something) (Giannakidou and Zeijlstra 2017)

(35) *Step 2: deletion*



(36) *Step 3: bundling*



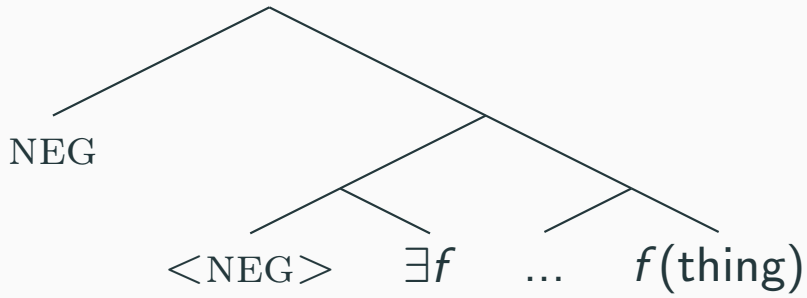
Adult NC grammar (neg-dupl < bundling)

(37) Balász nem látott semmit. *Hungarian*
Balász not saw n-thing
'Balász didn't see anything.'

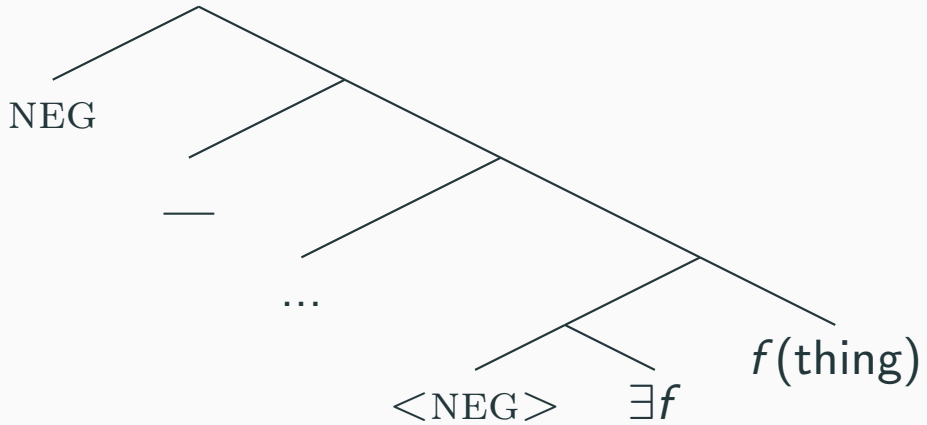
(Giannakidou and Zeijlstra 2017)

(38) *Step 0: input to morphology*

(39) *Step 1: duplication*



(40) *Step 2: bundling*

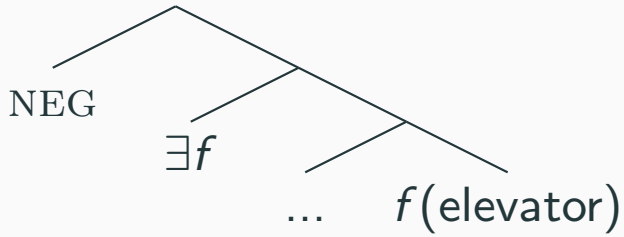


Child errors (= Adult NC grammar)

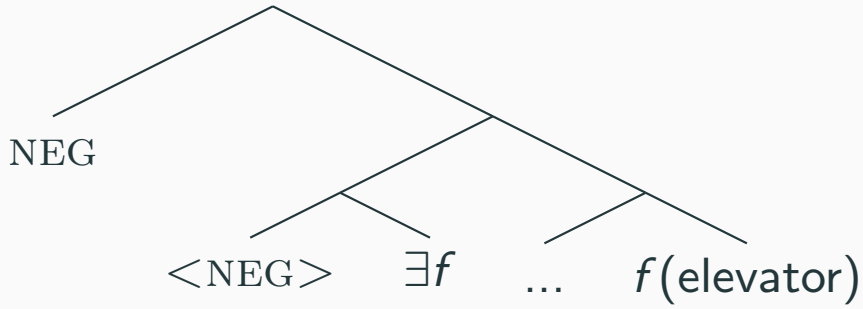
(41) Der hat nicht kein Fahrstuhl. *child German*
he has not no elevator
'He hasn't got an elevator.'

Caroline 2;06, (MacWhinney 1991)

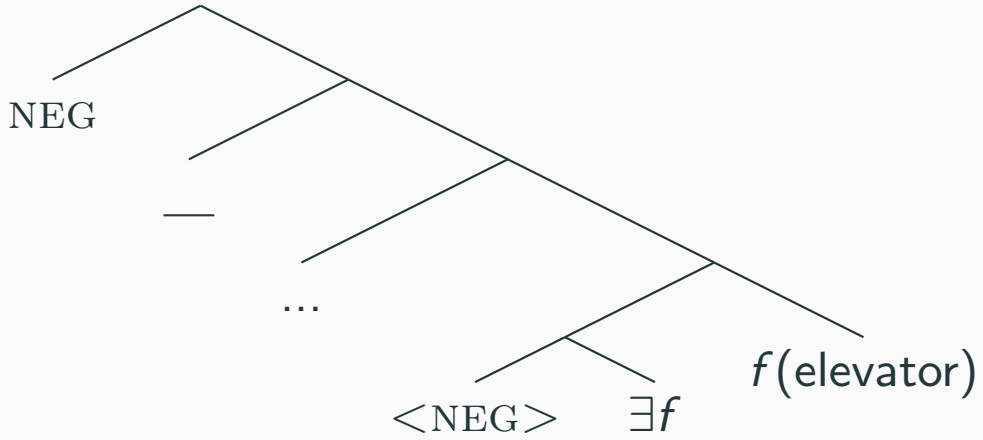
(42) *Step 0: input to morphology*



(43) *Step 1: duplication*



(44) *Step 2: bundling*



Grammars and acquisition

Adult non-NC grammars are distinguished from child non-NC grammars by the availability of the NEG-deletion rule:

- Adult NC grammar: NEG-duplication $\prec$ bundling
- Adult non-NC grammar:
  NEG-duplication $\prec$ NEG-deletion $\prec$ bundling
- Child errors acquiring non-NC grammar:
  NEG-duplication $\prec$ bundling

Key idea to account for aquisition errors:

- Child errors are derived by assuming that NEG-deletion is not consistently applied $\rightsquigarrow$ leads to NC utterances.
- Advantage over other accounts: No prediction of NC phase; no need for input that NEG is a head

Discussion: Agree vs. Reduplication

Advantages over syntactic Agree accounts of NC

A syntactic AGREE account requires several non-trivial extensions such as Upward AGREE, Multiple AGREE, and diacritics on AGREE features.
(Also the QR account requires partial interpretation)

(45) *NC grammar (Czech)*

a. $Op_{[i\text{Neg}]}$ Dnes nikdo$_{[u\text{Neg}]}$ ne$_{[u\text{Neg}]}$-volá nikoho$_{[u\text{Neg}]}$

(46) *Non-NC grammar (German)*

a. dass ich nicht$_{[i\text{Neg}]}$ nichts$_{[u\text{Neg}\emptyset]}$ gegessen habe

b. dass ich nicht$_{[i\text{Neg}]}$ $Op_{[i\text{Neg}\emptyset]}$ nichts$_{[u\text{Neg}\emptyset]}$ gegessen habe

Morphological NC account: Makes no reference to these extensions.

Advantages over syntactic Agree accounts of NC

For NC grammars, a syntactic AGREE account requires an additional stipulation for the presence of sentence negation, as it is not necessary to make the derivation converge (see also discussion in Penka 2020).

(47) *NC grammar (Czech)*

a. *Op*$_{[i\text{Neg}]}$ Dnes nikdo$_{[u\text{Neg}]}$ **ne**$_{[u\text{Neg}]}$-volá nikoho$_{[u\text{Neg}]}$

Morphological NC account: The presence of sentence negation falls out naturally since NEG always introduces semantic negation, it is the trigger to create NEG duplicates (which do not influence interpretation).

Advantages over syntactic Agree accounts of NC

A syntactic AGREE account has no handle on why negative morphology specifically appears with *indefinites*. In other words, why do we never see negative morphology with *definite* determiners?

Morphological NC account: The occurrence of Negative Concord with indefinites follows naturally given the choice function analysis which creates the necessary local configuration with the NEG-operator.

(48) *(Negated) indefinites as choice functions:*

Extension to English dialects

English dialects display optional NC

English varieties display NC utterances and non-NC utterances in free variation (Blanchette 2015, Tubau 2016, Robinson and Thoms 2021).

(49) *UK-based varieties of English* (Tubau 2016)

a. But he had no music (Outer Hebrides)

b. Well you got nothing (Nottinghamshire, Midlands)

c. And beyond that nobody couldn't go (Glamorgan, Wales)

d. I didn't say nothing (Outer Hebrides)

e. Mi father had no work at all, and couldn't get a job nowhere (Lancashire, North)

Given that both NC and non-NC variants exist, there seems to be enough evidence for learners to postulate a NEG-duplication and a NEG-deletion rule.

English dialects display optional NC

We therefore propose that English varieties can be derived within the current system by a partial order of rules.[4]

(50) *Rule orders*

a. NC grammar: NEG-duplication $\prec$ bundling

b. non-NC grammar: NEG-duplication $\prec$ NEG-deletion $\prec$ bundling

c. English varieties: $\{$ NEG-duplication, NEG-deletion $\}$ $\prec$ bundling

Two orders responsible for optionality:

- NEG-*duplication* $\prec$ NEG-*deletion* $\prec$ *bundling* (non-NC utterances)
- NEG-*deletion* $\prec$ NEG-*duplication* $\prec$ *bundling* (NC utterances)

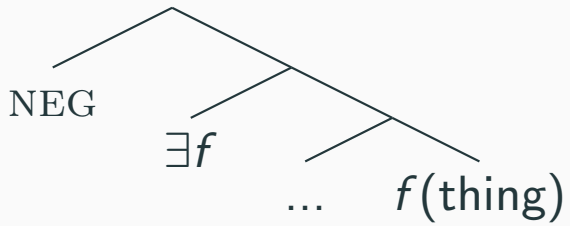
[4] We ignore here the discussion whether all non-NC languages are indeed like English varieties and prescriptivism enforces a non-NC pattern (Blanchette 2015, 2017, Weiß 2004). Feel free to ask in the Q&A session.

English NC utterances with neg-del ≺ neg-dupl ≺ bundling

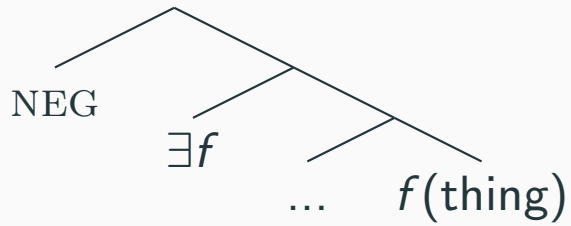
Recall NEG-deletion: NEG ⟶ ∅ / __ [NEG ∃

(51) I didn't say nothing.

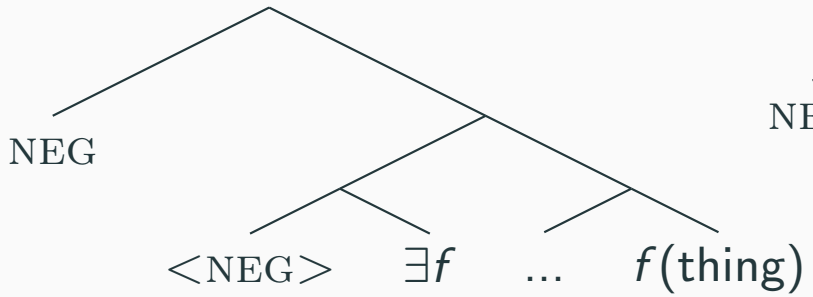
(52) *Step 0: input to morphology*



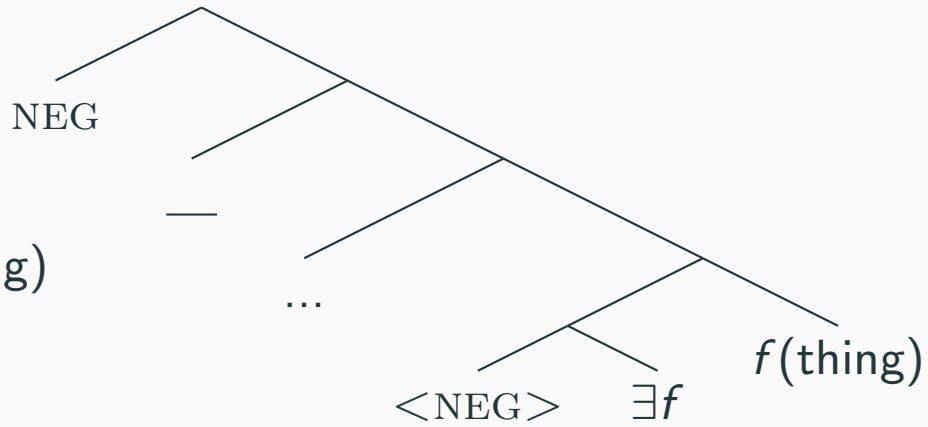
(53) *Step 1: deletion (does not apply)*



(54) *Step 2: duplication*



(55) *Step 3: bundling*



Summary

- **Main finding:** NC errors in natural speech production of children acquiring English, German, and Dutch.
- Account within **Meaning First:** Conceptual structure is shared across NC and Non-NC grammars; children's NC errors reveal pieces of the underlying conceptual structure, i.e. NCI/NI: NEG+indefinite.
- The low frequency of the errors is explained by inconsistent rule application (no NC phase).
- We analyze NC as a morphological phenomenon with the interaction of rule ordering, which avoids several issues the (standard) syntactic accounts face.
- NC and non-NC languages share a reduplication rule and the underlying semantic structure, which makes this account more in line with Weiß (2004) and Penka (2007, 2011); pace Zeijlstra (2011).

Acknowledgements

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 856421).

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Appendix A: Another error type

Grammars and acquisition

Given this typology ...

- Adult NC grammar: NEG-duplication $\prec$ bundling
- Adult non-NC grammar:
  NEG-duplication $\prec$ NEG-deletion $\prec$ bundling
- Child errors acquiring non-NC grammar:
  NEG-duplication $\prec$ bundling

... we expect another error type:

$\Rightarrow$ Child errors where neither NEG-duplication nor NEG-deletion is applied.

$\Rightarrow$ These errors would be utterance with sentence negation and a positive indefinite taking narrow scope.

Another error type

(56) CHI: und ich wollte xxx **nich(t)** **eine** Pause machen. *German*
and I want not a pause make
'and I don't want to take a break'

FAT: nee, da machen wir **keine** Pause.
no there make we no pause
'No, we don't take a break there.'

Leo (3;08, Behrens 2006)

Another error type

(57) MOT: omdat je **geen** onderbroek aan had . *Dutch*
because you no pants on had
'because you have no pants on'

CHI: ja! nee!
yes no
'Yes! No!'

MOT: doe maar gauw een onderbroek aan .
do PRT quickly a pants on
'Put pants on quickly!'

CHI: nee !

MOT: ja .

CHI: wil **niet een** onderbroek .
want not a pants
'I don't want pants on.'

Abel (2;11, Wijnen and Verrips 1998)

Another error type = another adult grammar

Results of our corpus study:

- 48 decomposition errors in Dutch amounting to an error rate of 5.3 %
- 67 decomposition errors in German which corresponds to an error rate of 2.5 %

Indeed, these patterns are found in the majority of Adult grammars across the world (Kahrel 1996, Miestamo 2007, van der Auwera and Alsenoy 2016, 2018).

(58) a. ekun-da ō-ra-n. *Evenki*
something-CLT become-NFUT-3SG
'Something happened.'

b. ekun-da e-che o-ra.
something-CLT NEG-PST become-PTCP
'Nothing happened.'

Appendix B: Non-strict NC grammars

Non-strict NC grammars

Non-strict NC grammars show negative concord for arguments post-verbally but not pre-verbally.

(59) *Italian*

a. Non ha telefonato nessuno.
not has called n-body
'Nobody called.'

b. Nessuno ha telefonato.
n-body has called
'Nobody called.'

c. Nessuno ha telefonato a nessuno.
n-body has called to n-body
'Nobody has called anybody.'

Non-strict NC grammars

We analyze non-strict NC languages as NC languages but with an additional zero allomorph for NEG if it is linearly adjacent to an existential. Linear adjacency has been shown to be a domain for allomorphy (Embick 2010).

(60) a. Non ha telefonato nessuno.
not has called n-body
'Nobody called.'

b. Nessuno $\varnothing_{non}$ ha telefonato.
n-body has called
'Nobody called.'

c. Nessuno $\varnothing_{non}$ ha telefonato a nessuno.
n-body has called to n-body
'Nobody has called anybody.'

(61) a. /∅/ ⇔ [NEG] / EXISTS __

b. /non/ ⇔ [NEG]

c. /nessuno/ ⇔ [NEG,EXISTS]

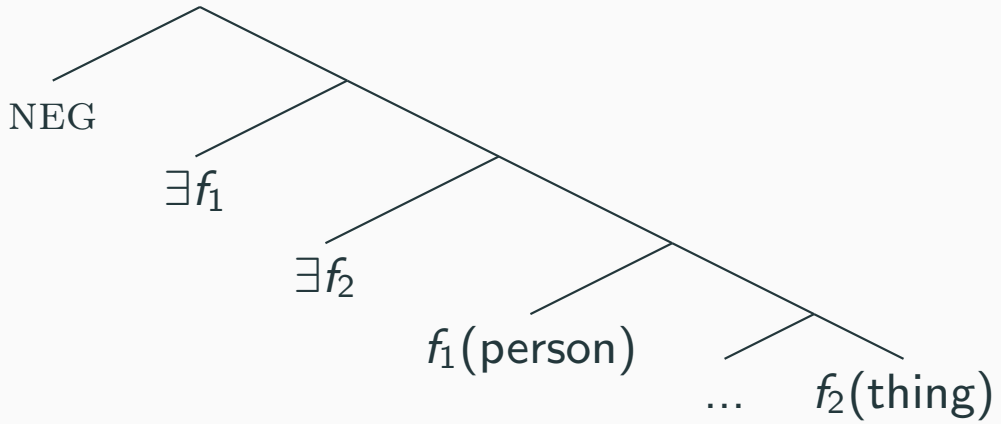
Appendix D: More than one NI

Adult non-NC grammar with two indefinites

Single negation reading:

(62) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Nobody said anything) G&Z (2017)

(63) *Step 0: input to morphology*

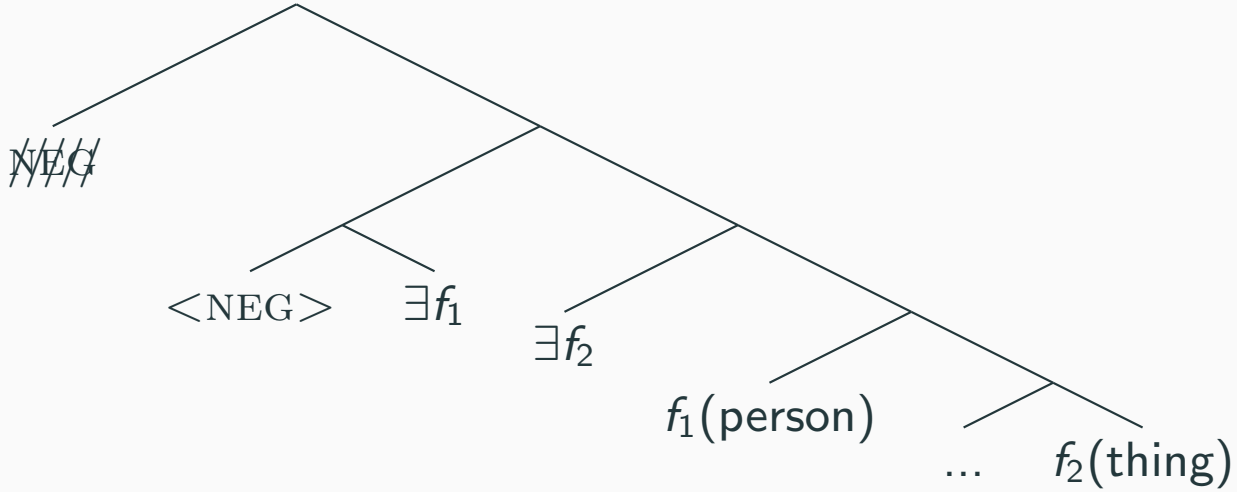


Adult non-NC grammar with two indefinites

Single negation reading:

(64) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Nobody said anything) G&Z (2017)

(65) *Step 1 & 2: duplication, deletion*

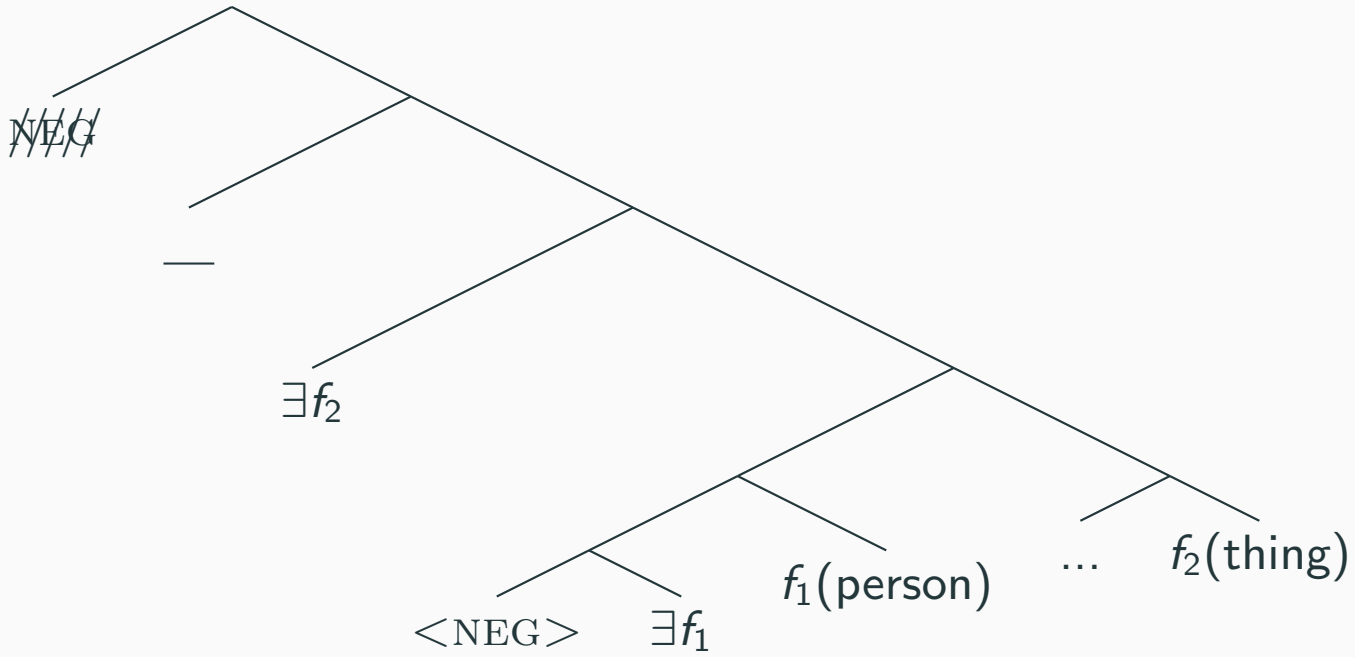


Adult non-NC grammar with two indefinites

Single negation reading:

(66) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Nobody said anything) G&Z (2017)

(67) *Step 3: bundling*



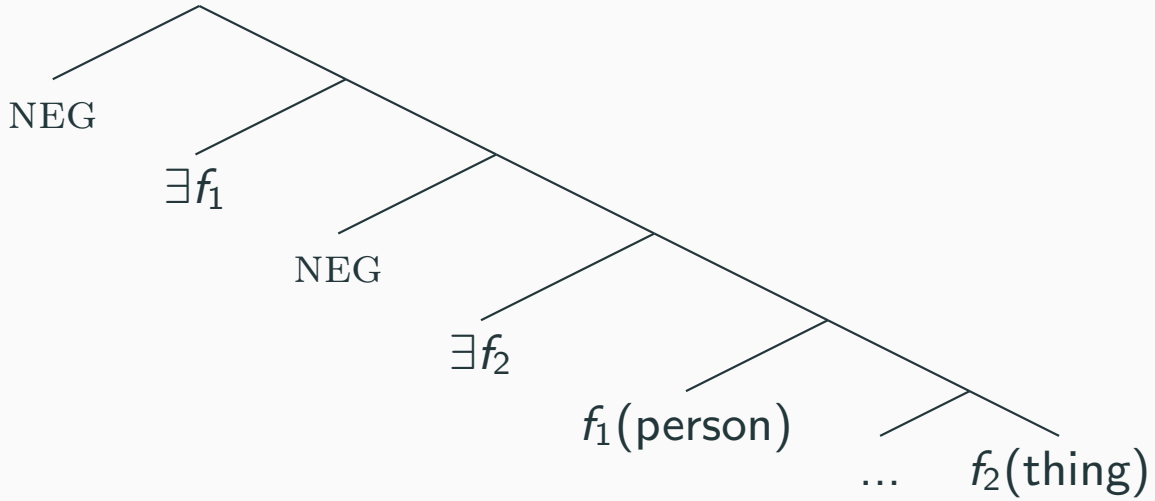
⇒ Wrong output: Nobody said something.

Adult non-NC grammar with two indefinites

Double negation reading:

(68) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(69) *Step 0: input to morphology*

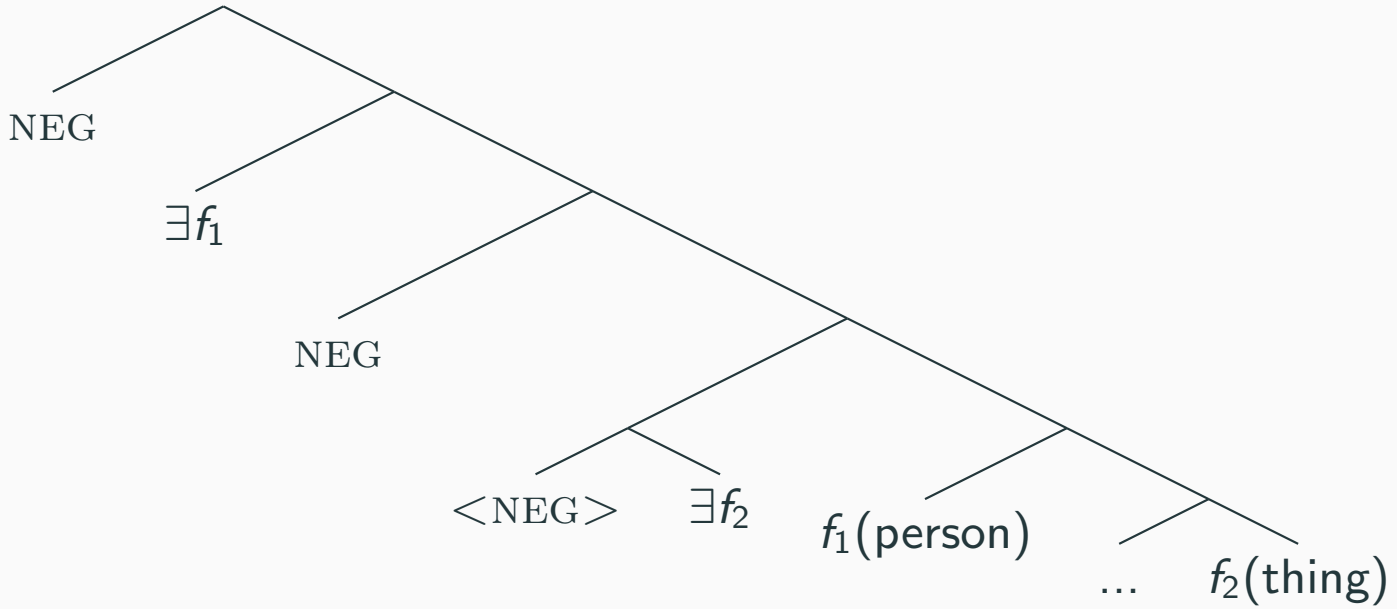


Adult non-NC grammar with two indefinites

Double negation reading:

(70) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(71) *Step 1: duplication*

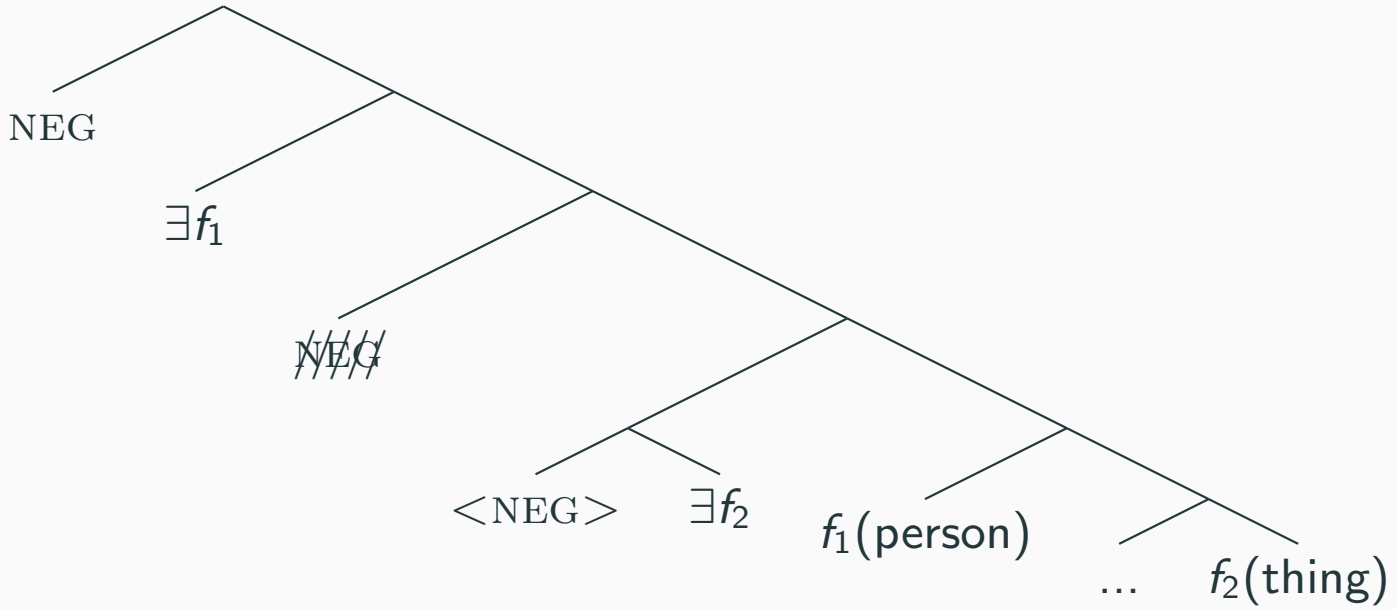


Adult non-NC grammar with two indefinites

Double negation reading:

(72) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(73) *Step 2: deletion*

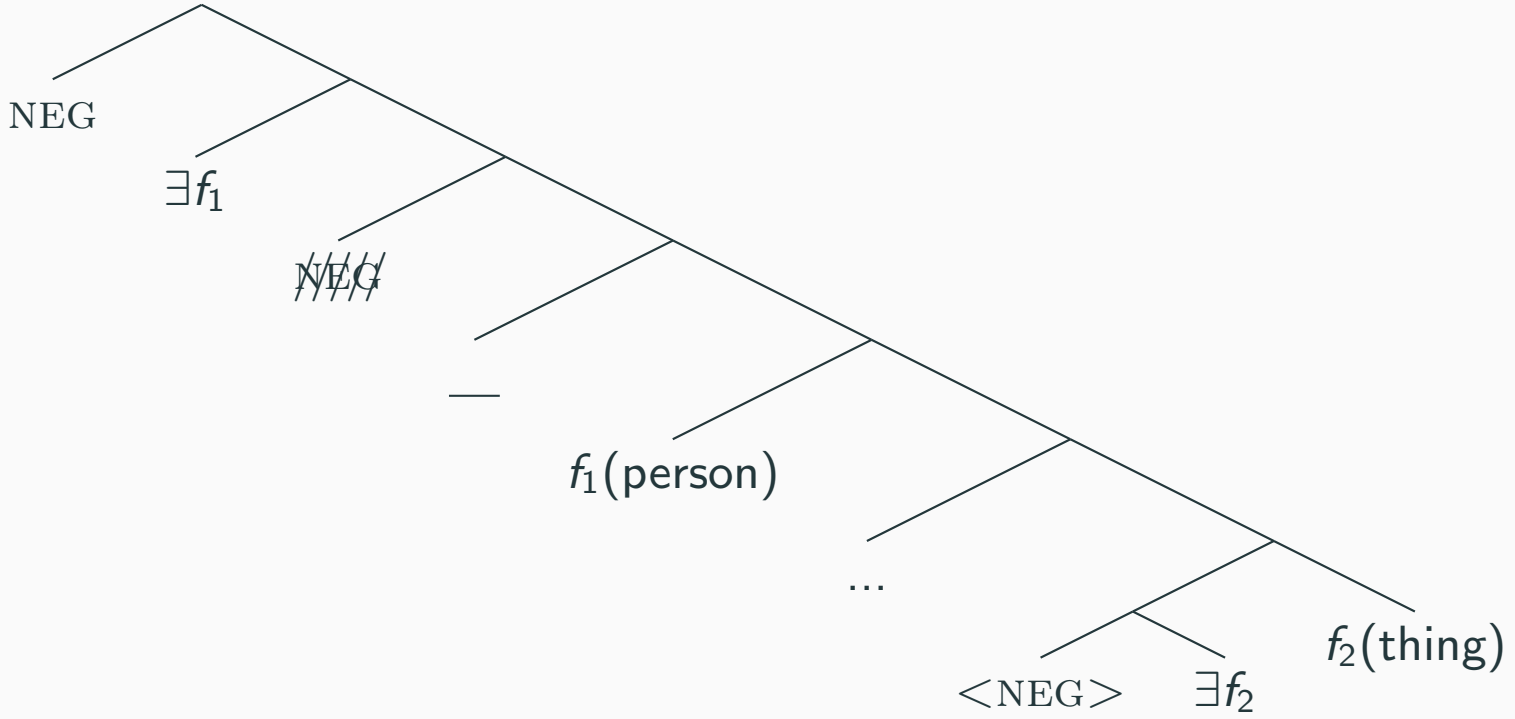


Adult non-NC grammar with two indefinites

Double negation reading:

(74) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(75) *Step 3: bundling*

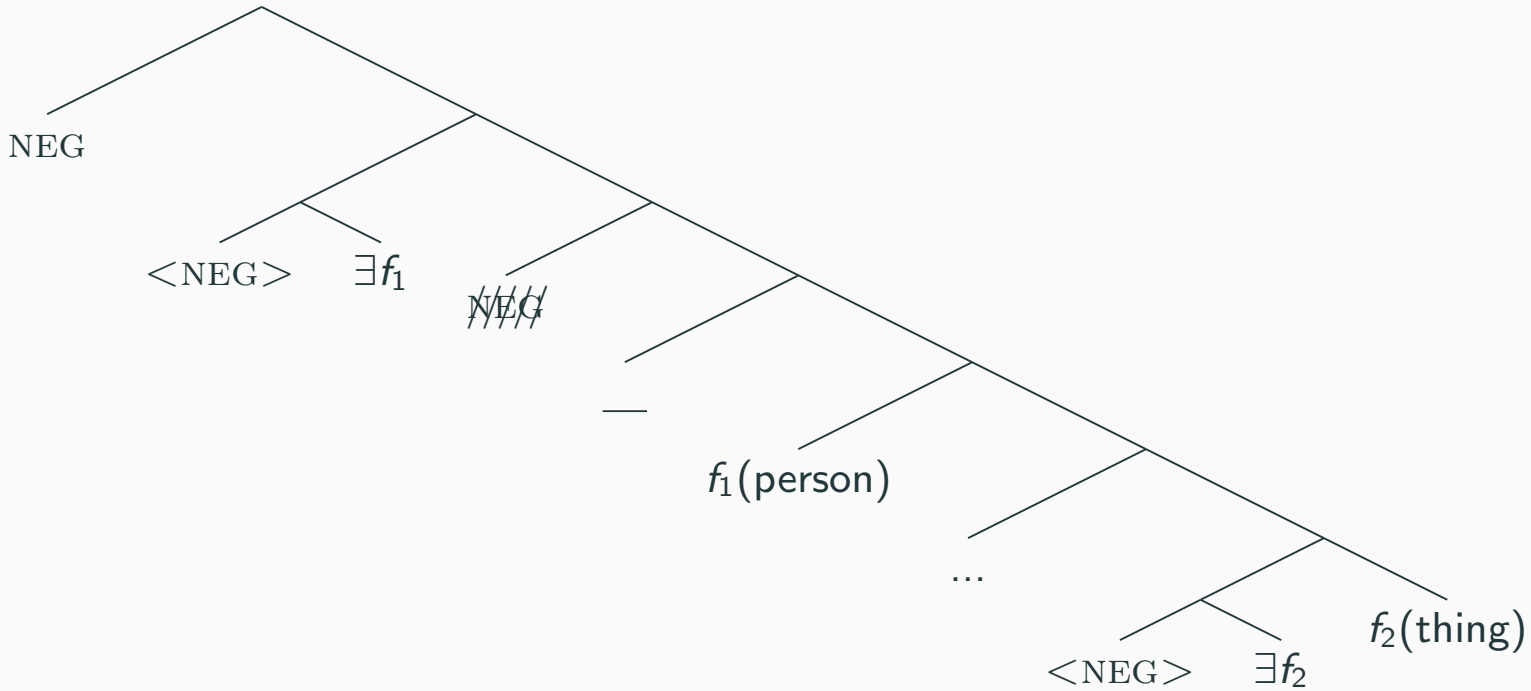


Adult non-NC grammar with two indefinites

Double negation reading:

(76) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(77) *Step 4: duplication*

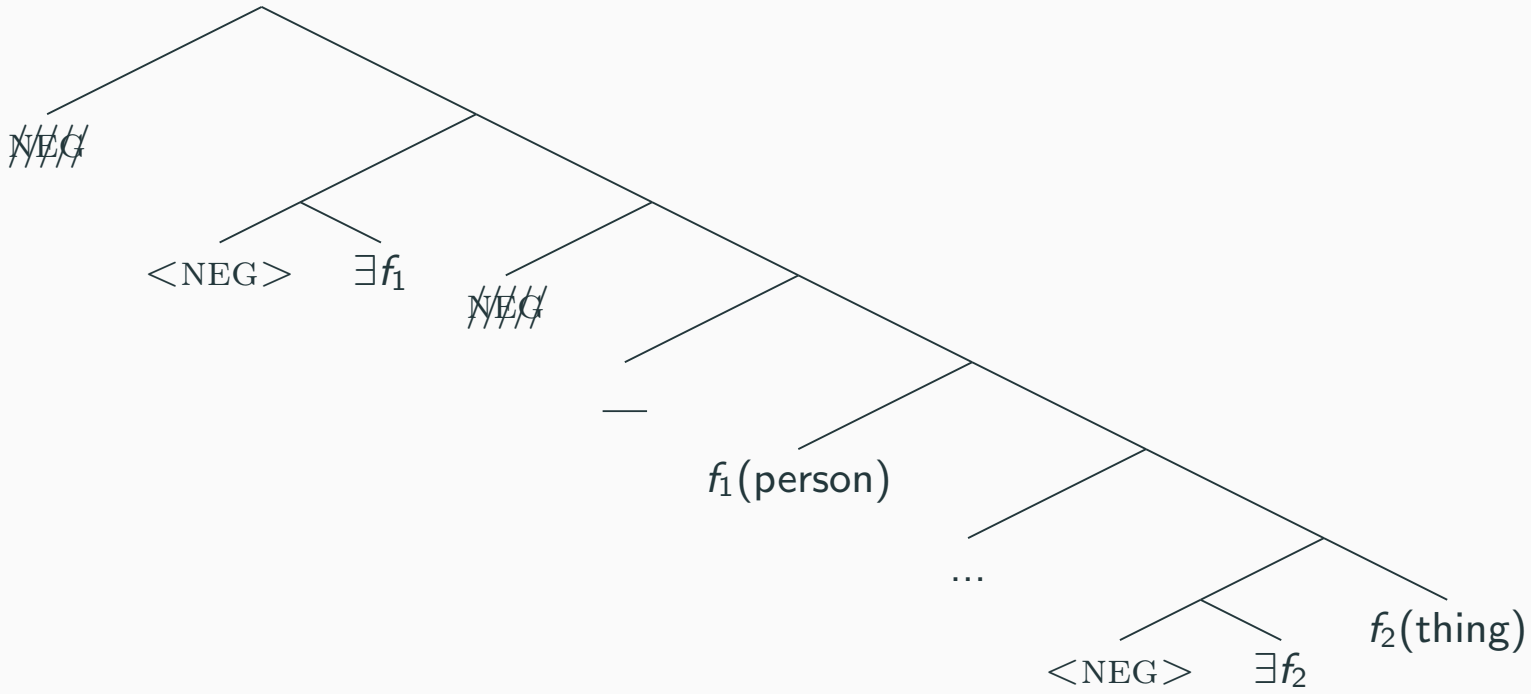


Adult non-NC grammar with two indefinites

Double negation reading:

(78) a. Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(79) *Step 5: deletion*

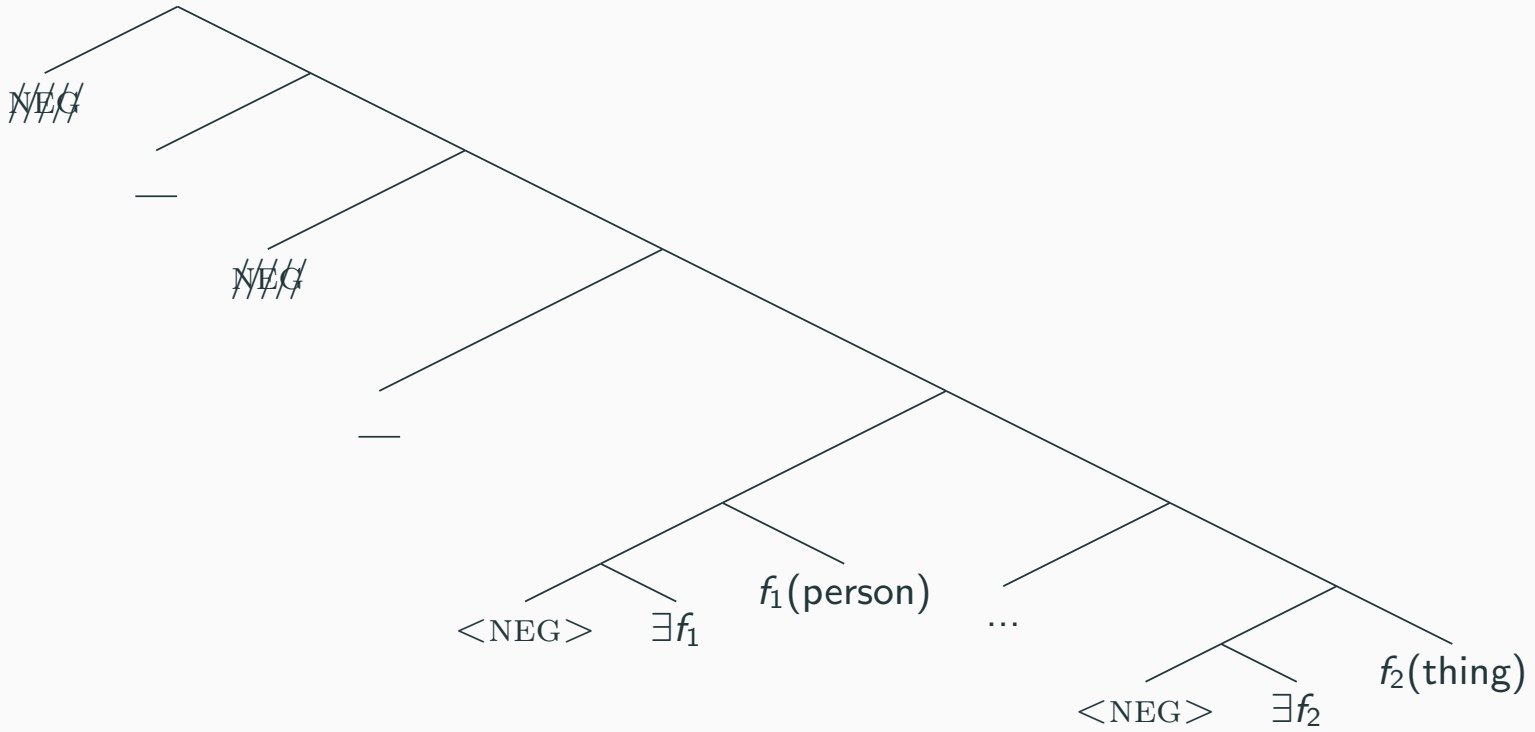


Adult non-NC grammar with two indefinites

Double negation reading:

(80) Niemand heeft niets gezegd. *Dutch*
n-person has n-thing said
'Nobody said nothing.' (Everybody said something) G&Z (2017)

(81) *Step 6: bundling*

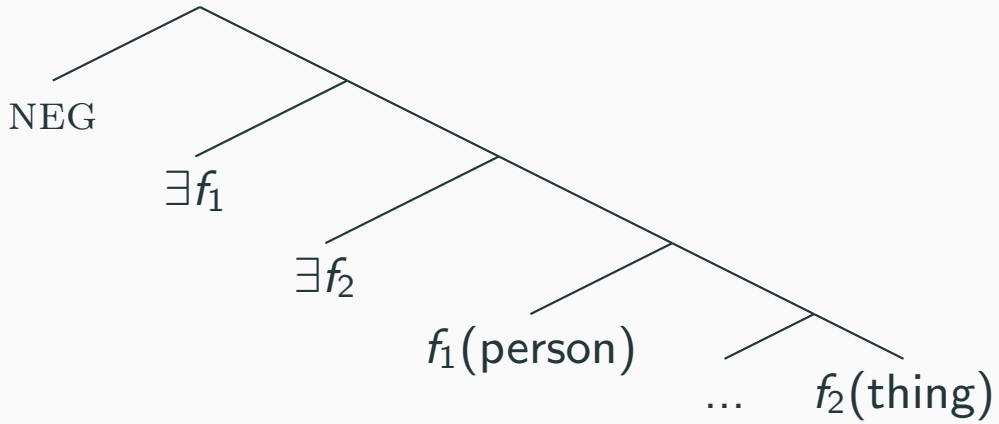


Adult NC grammar with two indefinites

Single negation reading:

(82) Senki nem látott semmit. *Hungarian*
n-person not saw n-thing
'Noone said anything.' G&Z (2017)

(83) *Step 0: input to morphology*

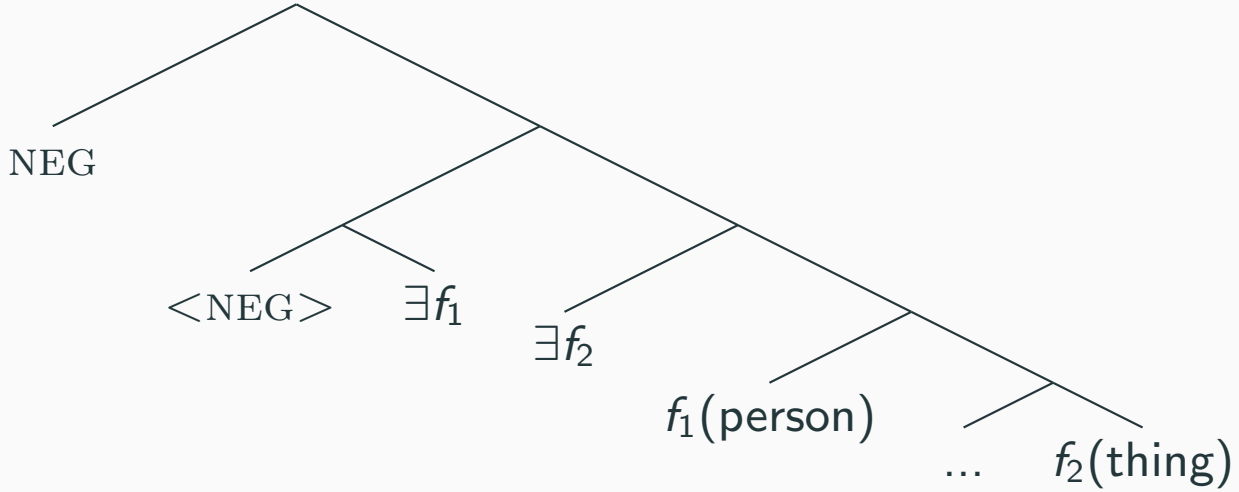


Adult NC grammar with two indefinites

Single negation reading:

(84) Senki nem látott semmit. *Hungarian*
n-person not saw n-thing
'Noone said anything.' G&Z (2017)

(85) *Step 1: duplication*

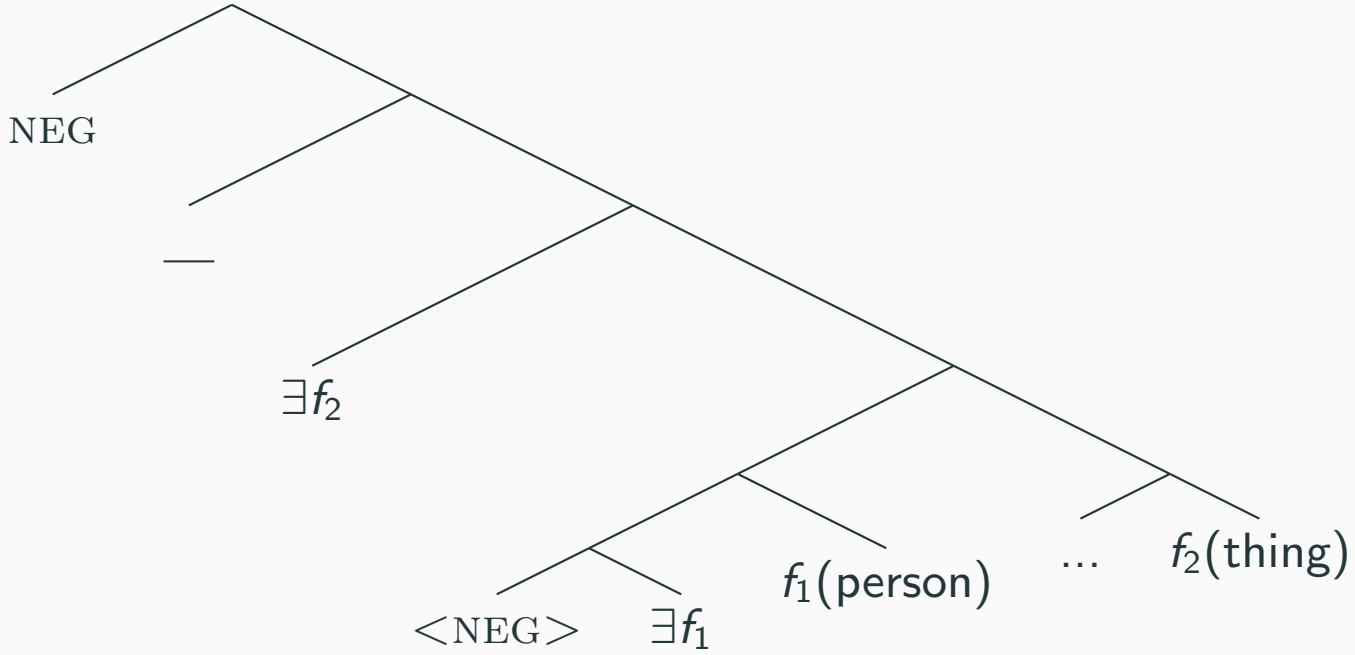


Adult NC grammar with two indefinites

Single negation reading:

(86) Senki nem látott semmit. *Hungarian*
n-person not saw n-thing
'Noone said anything.' G&Z (2017)

(87) *Step 2: bundling*

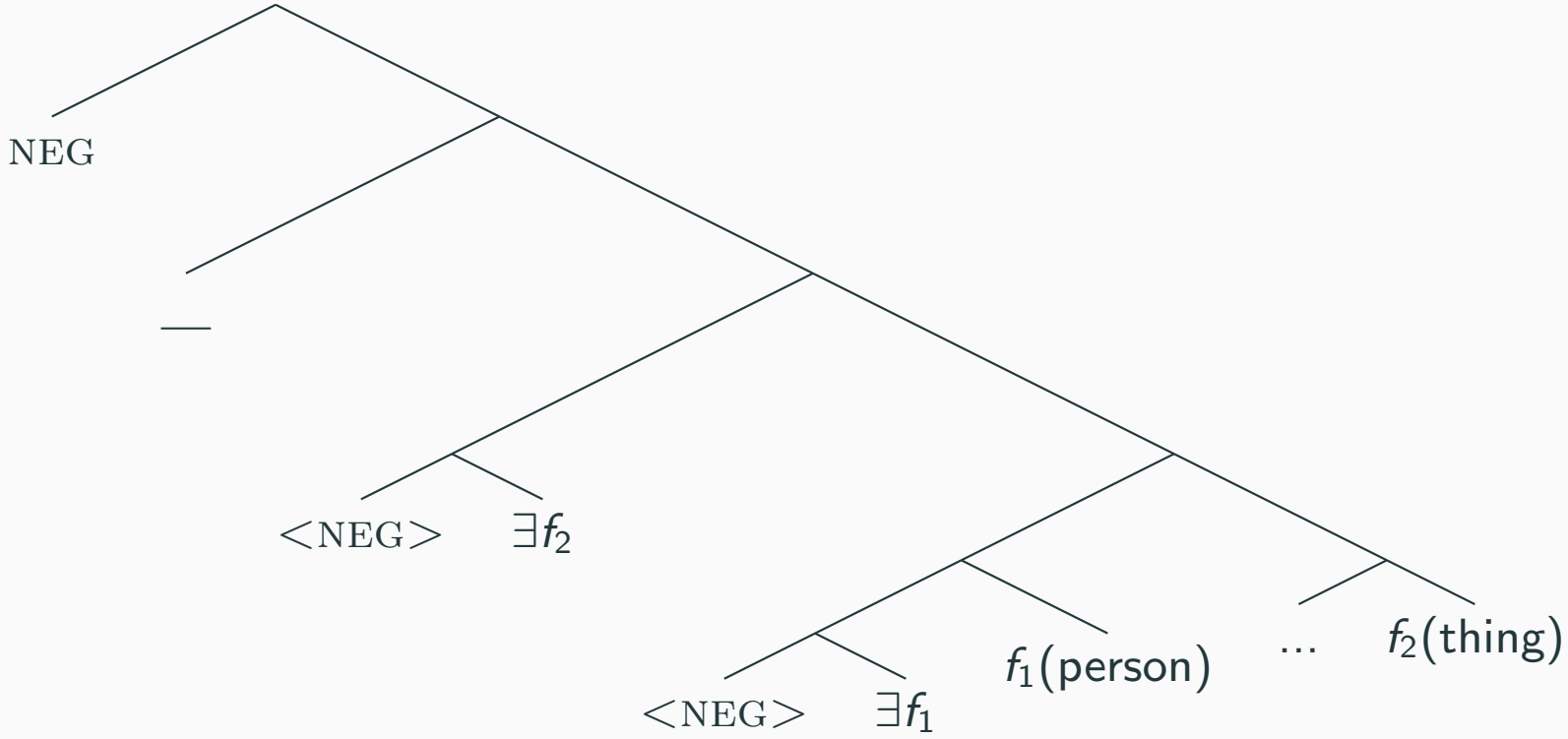


Adult NC grammar with two indefinites

Single negation reading:

(88) Senki nem látott semmit. *Hungarian*
n-person not saw n-thing
'Noone said anything.' G&Z (2017)

(89) *Step 3: duplication*

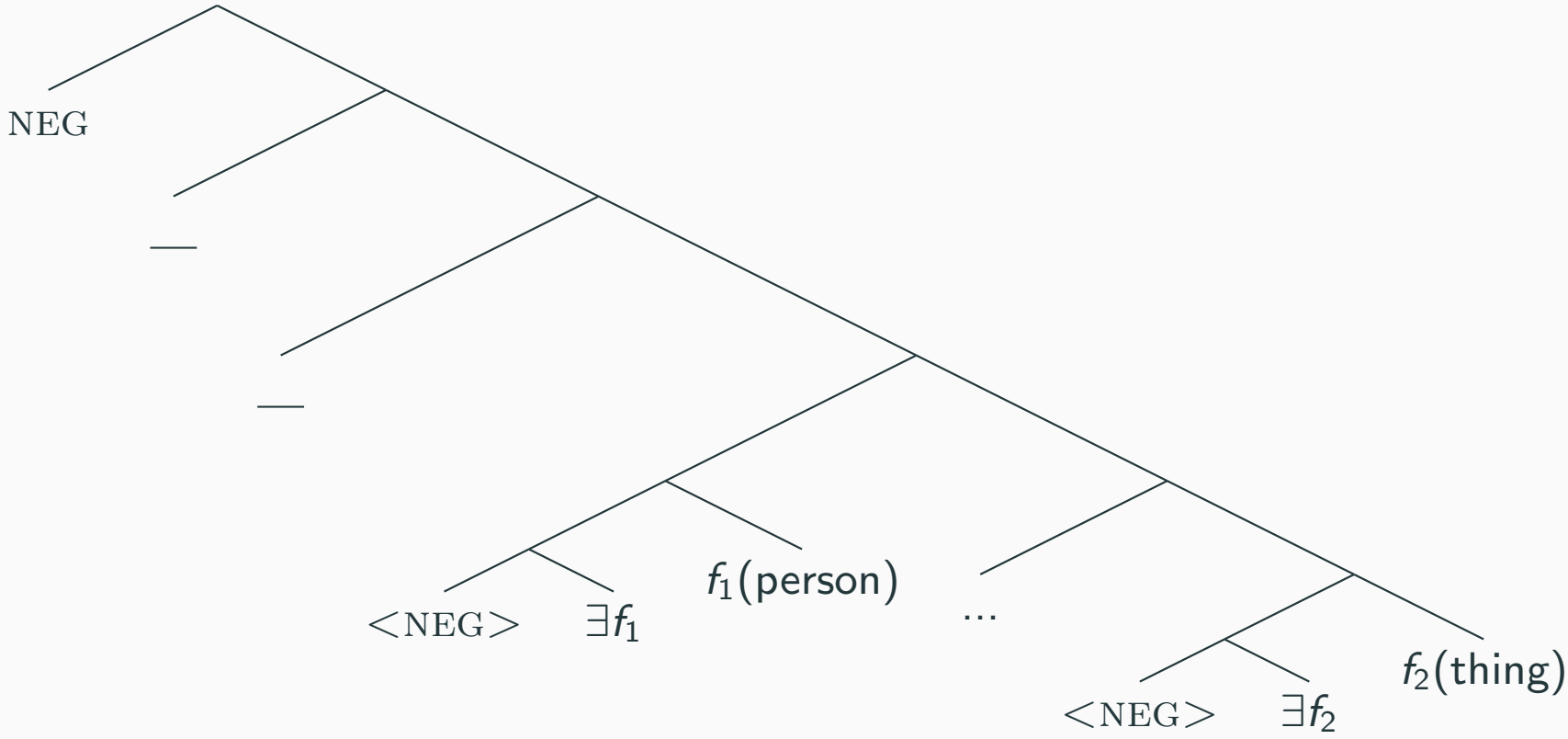


Adult NC grammar with two indefinites

Single negation reading:

(90) Senki nem látott semmit. *Hungarian*
n-person not saw n-thing
'Noone said anything.' G&Z (2017)

(91) *Step 4: bundling*



Appendix E: Split scope

Split scope readings in non-NC grammars

Split scope readings of NIs cooccurring with modal verbs (Jacobs 1980, Geurts 1996, Penka 2007):

- the indefinite takes scope under the modal
- negation takes scope above the modal

(92) a. The company need fire no employees. (Potts 2000)
$\rightsquigarrow$ It is not the case that the company is obligated to fire employees.

b. Ze hoeven geen verpleegkundige te ontslaan. *Dutch*
they need n-INDEF nurse to dismiss
'They don't need to dismiss any nurse.' (Rullmann 1995: 194)

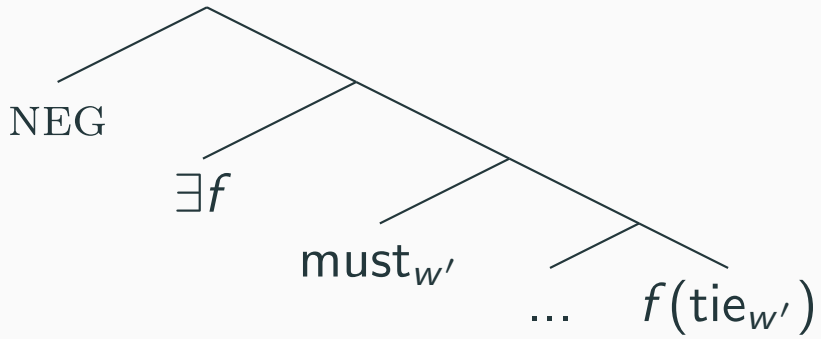
c. Du musst keine Krawatte anziehen. *German*
you must n-INDEF tie wear
'It is not required that you wear a tie.' (Penka 2007: 270)

Split scope readings as pseudo-scope

Abels and Martí (2010): the low scope existential reading of the indefinite is a case of *pseudo-scope* (Kratzer 1998): derived via binding of the world index of the restrictor NP by the modal.

(93) a. Du musst keine Krawatte anziehen. (Penka 2007: 270)
you must n-INDEF tie wear
'It is not required that you wear a tie.'

b. (cf. Abels and Martí 2010: 440)



c. $[\![(93a)]\!]^{@} = 1$ iff $\neg\exists CF(f)\&\forall w' R@$, you wear $f(\text{tie}_{w'})$ in w'

(Abels and Martí 2010: 441)

(93a) is true if and only if there is no choice function that in all relevant worlds w' picks a tie from w' that you wear in w'. In other words, you don't have to wear a tie in every world, i.e. the split scope reading of (93a).