Negative concord in the acquisition of English and German: Some results from a corpus study[*]

Johannes Hein[1], Cory Bill[2], Imke Driemel[1], Aurore Gonzalez[3],
Ivona Ilić[1] and Paloma Jeretič[2]
[1]Humboldt University of Berlin,
[2] Leibniz Centre for General Linguistics (ZAS) Berlin,
[3]University of Milan-Bicocca

1 Introduction

This paper is concerned with the acquisition of negative indefinites (NIs) by children who are acquiring English or German. In particular, it focuses on children's non-adult like productions of those indefinites where a sentential negator (*not/n't* or *nicht*) is realized in the NI's clause. In (standard) English and (standard) German, a NI can express the negation of a sentence on its own. For English, the NI *no* in (1a) indicates that it is not the case that Emma ate apples. Likewise for German, the NI *nichts* 'nothing' conveys that it is not the case that Milan sees something (2a). When the same sentence contains a sentential negation in addition to the NI, it yields a double negation reading (1b; 2b). Commonly, these sentences require a specific context to be felicitous.

(1) a. Emma ate **no** apples. (= ¬[Emma ate apples])

    b. Emma did**n't** eat **no** apples. (= [Emma ate some apples])

(2) a. Milan sieht **nichts**. (= ¬[Milan sees something])   *German*
       Milan sees nothing
       'Milan doesn't see anything.'

    b. Milan sieht **nicht nichts**. (= [Milan sees something])
       Milan sees not   nothing
       'Milan sees something.'

In negative concord (NC) languages such as Italian, Hungarian, or Bosnian/Serbian/Croatian (BCS), similar constructions with a sentential negator and a negatively marked indefinite convey only a single semantic negation. Thus, while the sentence in (3) from BCS contains both a negative marker *ne* and a negative indefinite (a so-called negative concord item, NCI) *ništa*, the proposition is only negated once. In fact, the sentential negative marker is obligatory in those languages.

(3) Milan **ne** vidi **ništa**. *BCS*
    Milan not sees nothing
    'Milan doesn't see anything.' (Progovac, 1994, 40)

During language acquisition, children are faced with the task of determining which type of language they are acquiring, a double negation (DN) language like German or English[1], or a NC language like Italian or BCS. Previous work on this matter investigating children's comprehension and adult artificial language learning indicate a bias towards NC. Specifically, children (3;6–6;5) acquiring English or German strongly favour a single negation interpretation of sentences like (1b) and (2b), respectively (Thornton *et al.*, 2016; Nicolae & Yatsushiro, 2020, see also Moscati, 2020; Tagliani *et al.*, 2022 on Italian). Likewise, learners acquire an artificial language with NC more easily than one with DN (Maldonado & Culbertson, 2021).

While the observed bias may result from NC being encoded in the grammar that children entertain at this point in their language development, it could equally well be explained by extra-grammatical factors. That is, as DN arguably has higher processing demands and is pragmatically restricted, children might favour NC readings on account of their immature processing and pragmatic abilities. Investigating children's production is likely to provide further insights into this bias and may even allow us to adjudicate between these two explanations. If children who acquire a DN language like English or German produce sentences that show erroneous NC, we can more confidently claim that the observed bias is due to a phase in which NC is a proper part of the learner's grammar.

Nicolae & Yatsushiro (2020) report two German examples from a search of the Leo corpus on the CHILDES database (MacWhinney, 1991; Behrens, 2006), and Miller (2012) provides ample instances in English from one child, Sarah from the Brown corpus (Brown, 1973). However, both studies have limited validity due to their size and the fact that Sarah was exposed to a lot of NC productions in parental speech.

We present results of an in-depth corpus study on several English- and German-acquiring children corroborating Nicolae & Yatsushiro's and Miller's promising but restricted findings. Our results show that children produce a substantial number of NC-like constructions during acquisition in both languages. However, there are considerable quantitative and distributional differences between the two languages.

The paper is structured as follows. In section 2, we present previous work on the acquisition of NIs in some more detail. In section 3, we lay out our methodology and procedure before presenting the results in section 4. Section 5 contains a discussion of the results and emerging differences between English and German with regard to the initial research question, and section 6 concludes the paper.

---

[1]The status of English as a DN language is notoriously difficult to assess. While there are certainly a number of English varieties that clearly show NC the matter is still under debate for Standard English (Blanchette, 2017). For the purposes of this paper, we take standard English to be a non-negative concord language, as indicated by the adult data in Thornton *et al.* (2016).

2 Previous work on negative indefinites in acquisition

As mentioned in section 1, there is some work on the acquisition of NIs in English and German from the perspective of comprehension. Thornton *et al.* (2016) conducted a study on 3;6 to 5;8 years old English-acquiring children's interpretations of sentences with a NI and a sentential negator like (4). They also tested a control group of English-speaking adults, which were expected to interpret them as conveying the double negation meaning in (4a). The research question was whether children would behave like adults and assign the DN interpretation in (4a), or whether they rather assign the NC interpretation in (4b).

(4)   The girl who skipped didn't buy nothing.

    a. The girl who skipped bought something.

    b. The girl who skipped bought nothing.

Thornton *et al.* (2016) found that children chose a NC interpretation (i.e., (4b)) over a DN interpretation (i.e., (4a)) of such sentences 75% of the time. Adults, on the other hand, preferred such an interpretation in only 18% of cases.

    Nicolae & Yatsushiro (2020) ran a similar study in German, investigating whether children (4;2–6;5 years old) interpret sentence like the one in (5) as conveying a single semantic negation or a double negation. Their results show that the NC interpretation was preferred by the children approximately 95% of the time. The adult controls, however, did so in only about 15% of cases.

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

    'The rabbit ate not vegetables.'

Supplementing the comprehension experiment, Nicolae & Yatsushiro (2020) also conducted a search of the Leo corpus through the CHILDES database (MacWhinney, 1991; Behrens, 2006). They found that the two-year-old child had produced several NC utterances recorded in this transcript, including (6).

(6)   keine Glocken nicht da!   *German*
    keine bells   not   there

    'no bell there!'   (Leo 2;02, Behrens, 2006)

    We therefore find a clear bias for NC in both English- and German-acquiring children, at least in comprehension. This preference can even be observed in children acquiring NC languages when looking at DN corners of those languages (Moscati, 2020; Tagliani *et al.*, 2022). Take Italian as an example. Despite Italian being a (non-strict) NC language it shows DN interpretations of two negative elements in a sentence in certain contexts. One such context is a configuration whereby a preverbal NCI co-occurs with a negative marker as in (7). A second one is fragment answers to negative questions, as in (8).

(7) NESSUNO non ha mangiato.   *Italian*
    nobody   not has eaten
    'Nobody didn't eat' = 'Everybody ate.'   (Penka, 2011, 19)

(8) Q: Chi non è venuto?   *Italian*
       who NEG is come
       'Who didn't come?'

    A: Nessuno.
       nobody
       'Nobody.'='Nobody didn't come./Everybody came.'   (Moscati, 2020, 170)

Moscati (2020) conducted an experiment on the latter using a Truth-Value Judgement Task. He found that fragment answers to negative questions were assigned the (expected) DN reading by children (4;6–6;3 years old) only 37% of the time. This contrasts with adults, whose DN responses to the same items almost reached 60%.

Given this bias for NC in children, we ask whether children, in particular those who are acquiring a DN language like (standard) English or German, produce a substantial amount of sentences that contain both a sentential negator and a NI, but that are intended to convey only a single semantic negation. A partial yes-answer can already be given for German on the basis of Nicolae & Yatsushiro (2020)'s findings. To answer the question for English and for a broader set of German data, we conducted an in-depth corpus search, as detailed in the following section. Indeed, we found a number of NC-like utterances both for English and German but with quantitative and distributional differences between both languages, which will be discussed in section 4.

3   Corpus study

We selected corpora from the CHILDES database (MacWhinney, 1991) of German and English aiming at a roughly equal total number of utterances in order to keep the two languages comparable. As there are fewer corpora for German than for English, we first gathered data from all available German corpora (as of December 2021) with typically developing children of the right age (0–7). We collected data from 43 German-speaking children aged 0–14;10 across 8 corpora (Caroline, MacWhinney, 1991; Grimm, Grimm, 2007; Leo, Behrens, 2006; Manuela Wagner, 2006; Miller, Miller, 1979; Rigol, Lieven & Stoll, 2013; Stuttgart, Lintfert, 2009; Wagner, Wagner, 1985), and from 7 English-acquiring children (5 American English, 2 British English) aged 0;7–7;10 across three corpora (Brown, Brown, 1973; MacWhinney, MacWhinney, 1991; MPI-EVA-Manchester, Lieven *et al.*, 2009). We checked for both languages whether any of the caregivers' speech recorded in the corpus contained NC utterances which we took to be indicative of the child acquiring a NC dialect of the language. This led to the exclusion of Sarah from the Brown corpus which is incidentally also the child that the only previous corpus study on the acquisition of NIs in English is based on (Miller, 2012). The total number of utterances amounts to 363,028 for German and 328,972 for English. As shown in

Fig. 1, the distribution of the utterances across ages is similar in German and English with most data being available between 25 and 38 months of age. Since we did not have any English data beyond the age of 7;10, we only consider German utterances up to that age and ignore utterances produced by older children in this paper. This reduces the amount of relevant utterances in German to 338,407.
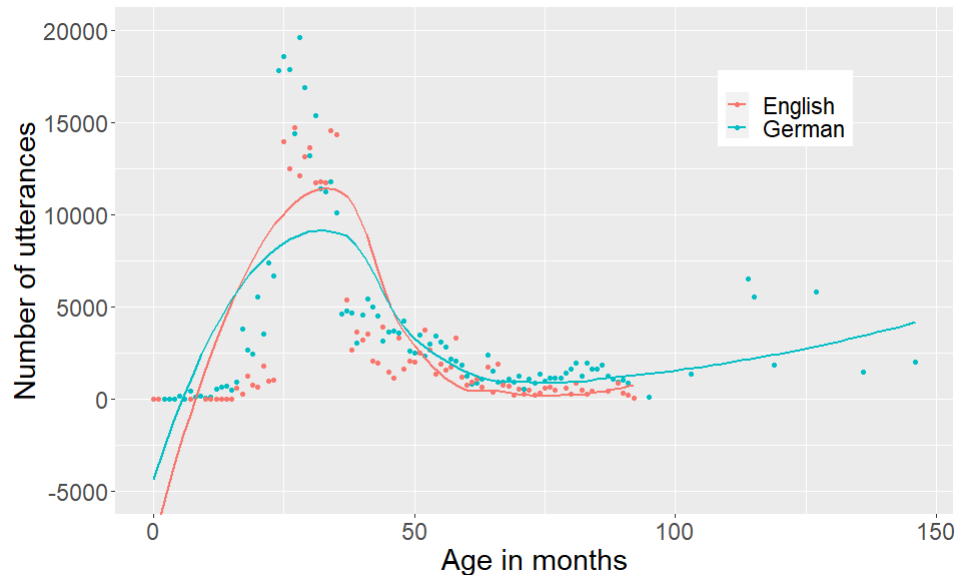

Figure 1: Distribution of utterances across age

From our data we extracted all child utterances that contained at least one NI (*no, nobody/no-one, nothing, never* for English; *kein, niemand, nichts, niemals* and relevant inflected forms for German). We found 2,529 such utterances in English and 3,370 in German. Each utterance was coded for the type of NI and whether it cooccurred with sentence negation. We also tagged the position of the NI as either preverbal or postverbal, excluding for German those that appeared in a verb-final (embedded) or verb-initial (polar question) clause and for English those that were found in clauses with Subject-Auxiliary-Inversion (i.e. polar questions). For English, we further coded whether the sentential negation was affixal *n't* or phrasal *not*. Fragment utterances that did not contain a verb, participle, or predicational element and mistaggings (e.g. English *no* tagged as a response particle) were annotated and excluded from further analysis. This left us with 909 utterances in English and 2,665 in German. All annotations were done by native speakers of the respective language.

4 Results

For English, we found a total of 184 NC utterances involving multiple negative elements. This amounts to 20.2 % of the 909 utterances that contain at least one NI. The vast majority, i.e. 178, are utterances where, in addition to a single NI, there also appears a sentence negator like *not* or *n't* (9). In four cases, NC is established

between a single NI and *never* (10). In the remaining two cases, there are two NIs and an additional sentential negator (11).

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

      b. No tigers don't bit you?   (Mark 2;08, MacWhinney, 1991)

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

      d. He won't hurt his head never.   (Eleanor 2;11, Lieven *et al.*, 2009)

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

(10) a. I never have no cookies.   (Adam 4;00, Brown, 1973)

      b. I never heard of no flying dinosaur.   (Adam 4;06, Brown, 1973)

      c. I promise I'll never hurt nobody again. (Ross 3;11, MacWhinney, 1991)

      d. I'll never care about nothin(g).   (Ross 5;04, MacWhinney, 1991)

(11) a. I can't do nothing with no string.   (Adam 4;02, Brown, 1973)

      b. She didn't use no nothing of paper.   (Adam 4;05, Brown, 1973)

For German, we found a considerably smaller amount of NC utterances, i.e. 45, which amount to 1.7 % of the 2,665 utterances that contain at least one NI. Except for one utterance, where NC is between a NI and *nie* 'never' (13), all other NC utterances contained the sentential negator *nicht* 'not' in addition to a NI (12).

(12) a. Kein Gewitter   kommt nicht heute.   *German*
         no   thunderstorm comes not   today
         'There's no thunderstorm 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)

      c. Kein Teller kann s net sein.
         no   plate can   it not be
         'It can't be a plate.'   (Sebastian 5;04, Lieven & Stoll, 2013)

(13) Geht ja   nie   niemand hin.
      goes PRT never nobody   there
      'Nobody ever goes there.'   (Sebastian 5;04, Lieven & Stoll, 2013)

The results are summarized in Table 1.

Figs. 2 and 3 show the proportion of NC utterances across age for English and German, respectively. We find that in both languages there is a contiguous span of about ten months (14 in English, 10 in German) where the error proportion is not zero. However, this span lies between the 44th and 58th age month for English but

Table 1: Counts of different utterances.

Language	Utterance count			Proportion (NC/NI)
	total	with NI	with NC	
English	328,972	909	184	20.2 %
German	338,407	2665	45	1.7 %

between the 25th and 35th age month for German. Thus, the error rate in English is highest at around 50 months reaching 35 % while in German the peak appears much earlier at about 27 months and only reaches ca. 3.5 %.
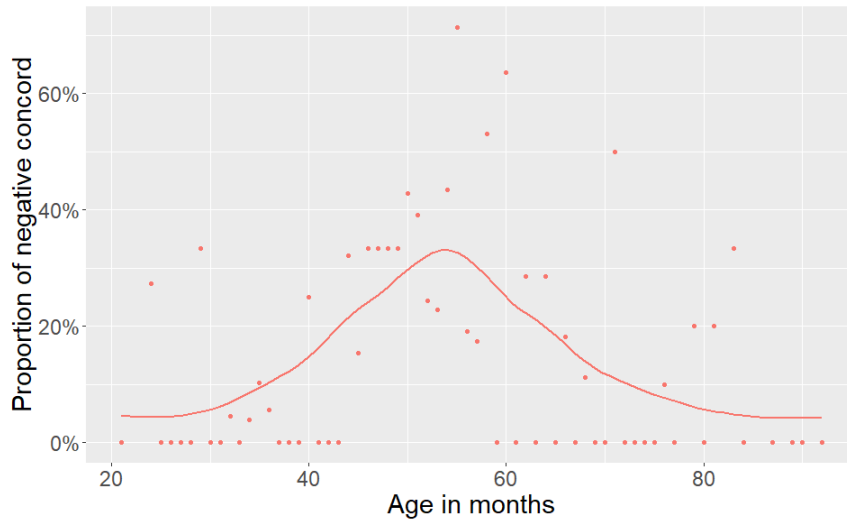

Figure 2: Proportion of utterances with NC over age (English)
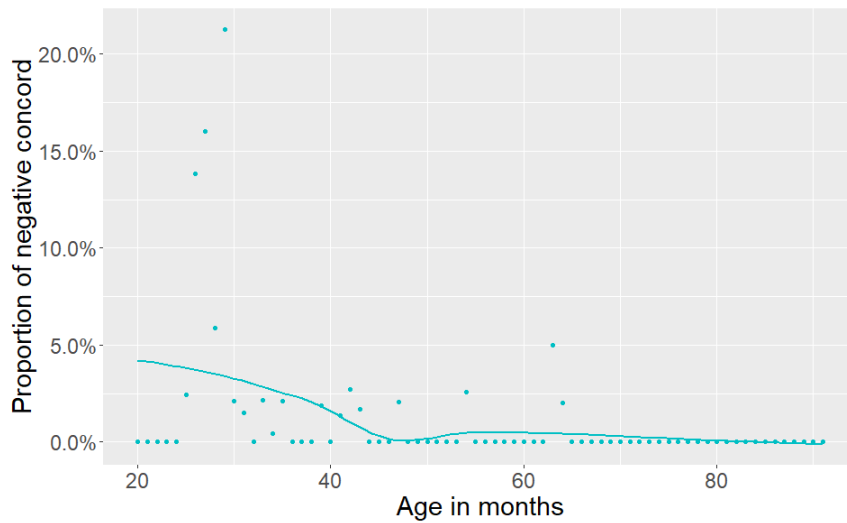

Figure 3: Proportion of utterances with NC over age (German)

Interestingly, a similar difference between English and German is found when looking at the overall use of NIs. Fig. 4 shows the proportion of NI-containing utterances across age. While the proportion of NI-utterances starts to sharply rise between 27 and 37 months for the German-acquiring children, it only substantially increases between 40 to 50 months for the English-acquiring children. The rate of NI-utterances then reaches a phase of relative stability at around 1.5 % for German and 1 % for English. The observation that the proportion of NI-utterances is overall lower in English fits with the fact that out of a roughly similar number of utterances (328,972 for English, 338,407 for German), only 909 contained non-fragment NIs (0.28 %) in English while for German there were 2,665 (0.79 %).
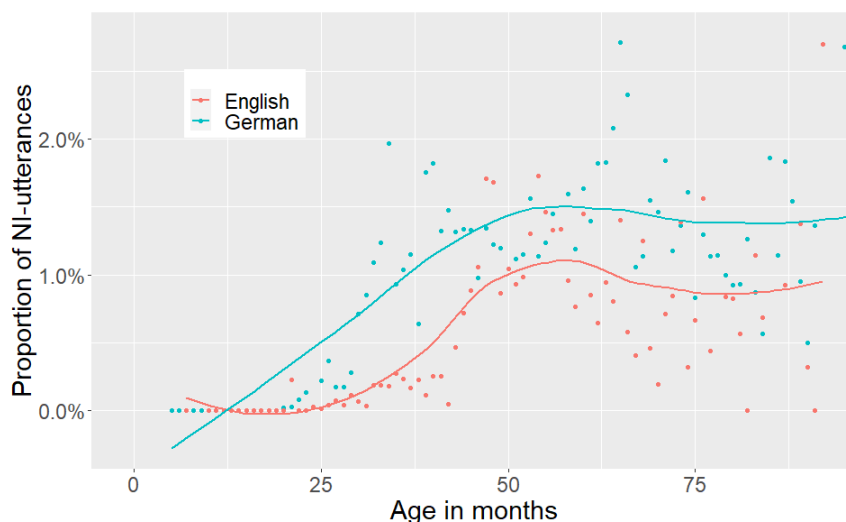

Figure 4: Proportion of utterances containing an NI over age

Turning to the different types of NIs, we distinguished five in English (*no*, *nothing*, *nobody*, *noone*, *never*) and four in German (*kein*, *nichts*, *niemand*, *niemals*). The proportion of each type within the total of NI-containing utterances is given in Fig. 5. For English, *no* occurs most often (46.2 %), followed by *never* (26.7 %). *Nobody* and *nothing* appear in 13.4 % and 13.1 % of cases while *noone* is used least frequently (0.5 %). The situation is slightly different for German. As in English, the negative indefinite determiner *kein* 'no' is the most frequent, but at 70 % it is substantially more frequent than its English counterpart. *Nichts* 'nothing' occurs 21.7 % of the time, while *niemals* 'never' takes third place at 6.4 %. *Niemand* 'nobody' appears in only 1.8 % of all utterances that contain a NI.

For each type of NI Fig. 6 shows the proportion of NC utterances within all utterances that contain the respective type of NI. For English, we observe that the error proportion is highest with utterances containing *nothing* (35.8 %) followed by those containing *no* (28.1 %), *noone* (20 %), *nobody* (10.6 %) and *never* (4.9 %). These proportions are considerably larger than those for German, where the highest error proportion is observed at 2.2 % with *kein* 'no', followed by *niemand* 'nobody' (2 %), *niemals* 'never' (1.2 %) and *nichts* 'nothing' (0.2 %).

Selecting only those utterances that exhibit NC, Fig. 7 shows the proportion of
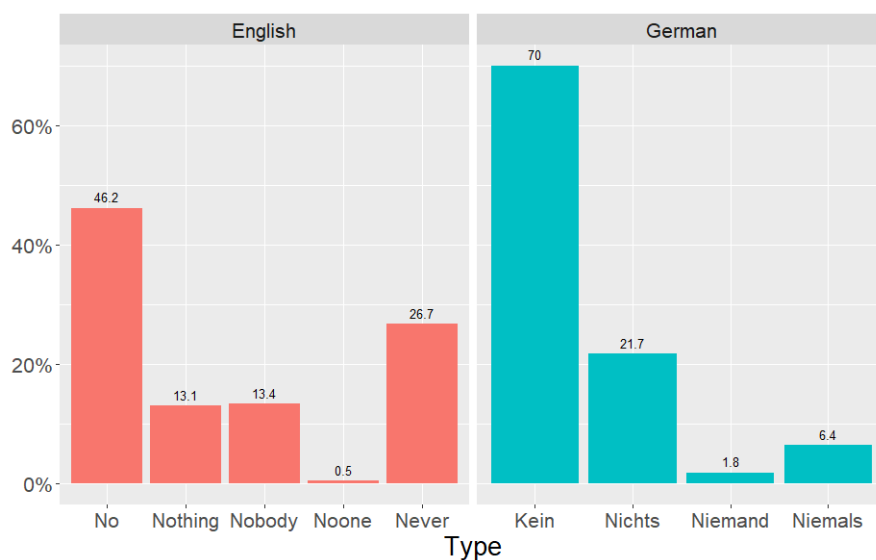
Figure 5: Proportion of each NI type in all NI-utterances
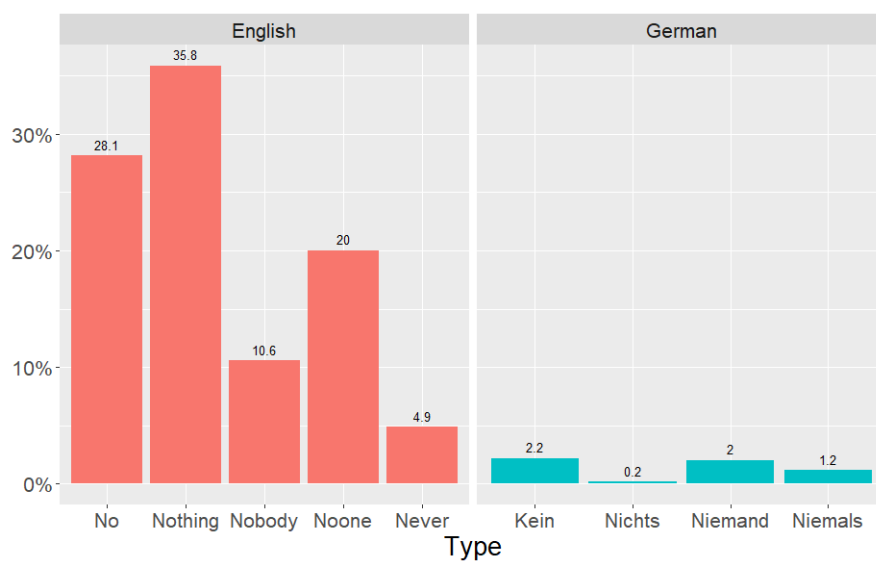
Figure 6: NC error proportion by type of NI

each type of NI present within them. For English, we observe that most of the 184 NC utterances contain the NI *no* (63.3 %). 22.9 % contain *nothing*, 6.9 % contain *nobody*, 6.4 % contain *never* and 0.5 % contain *noone*. In German, the respective counterpart of *no*, i.e. *kein*, is involved in an even larger proportion of all NC utterances, namely in 91.1 %, meaning that NC almost exclusively occurs with this type of NI. 4.4 % of NC errors (2 utterances) contain *niemals* 'never' and only 2.2 % each contain *nichts* 'nothing' and *niemand* 'nobody' (1 utterance each).

Turning to the position of the NI, Fig. 8 shows the overall count of NIs by position with respect to the finite verb, excluding cases where it cannot appear pre- or postverbally for independent reasons (i.e. verb-initial clauses in German and
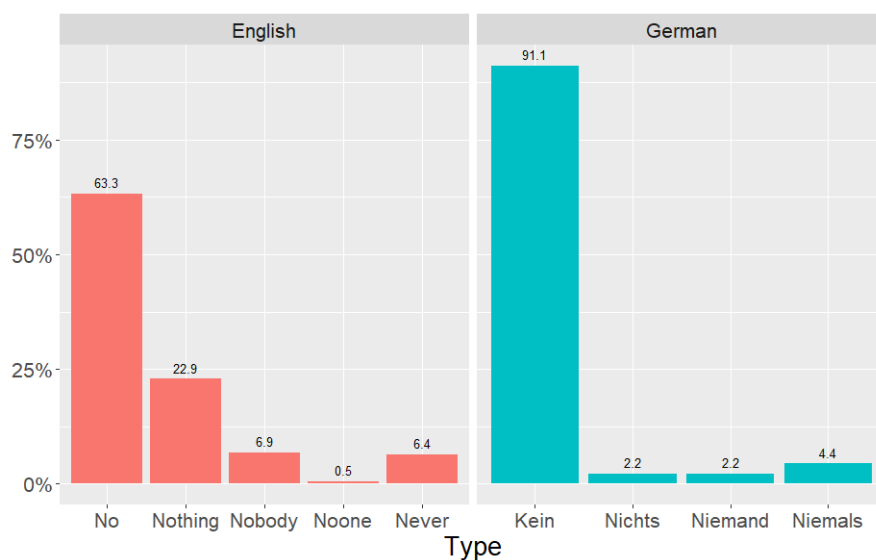
Figure 7: Proportion of each NI type in all NC errors

English, and verb-final ones in German). For English, 393 NIs appear preverbally, 495 occupy the postverbal position. The distribution in German strongly skews to the postverbal position where 2,246 NIs appear. Only 91 occur preverbally.
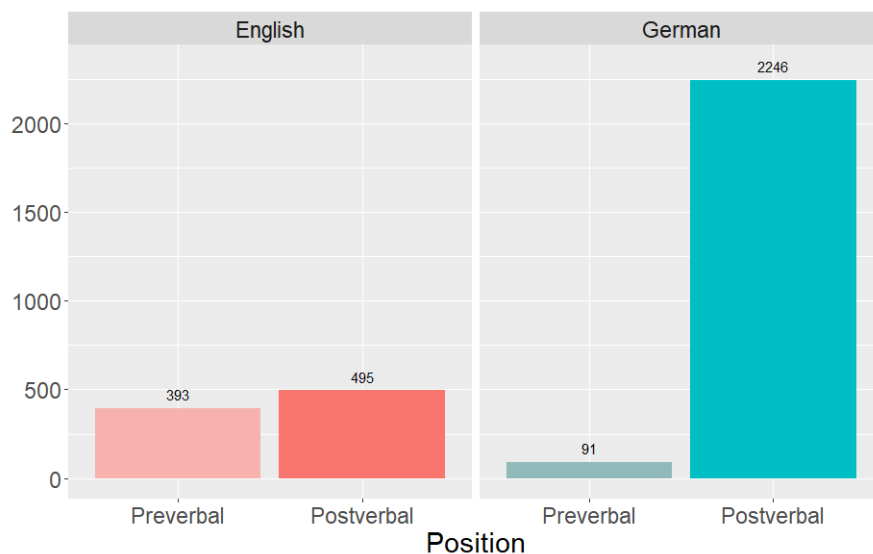
Figure 8: Number of NIs by position

Fig. 9 shows the proportion of NC by position of the NI. For English, of all preverbal NIs 5.6 % appear in a NC relation, while postverbal NIs appear in NC expressions 32.5 % of the time. The error proportion for postverbal NIs is therefore about 6 times higher than that for preverbal ones. This difference is statistically significant ($p < 10^{-5}$, χ^2-test). This distribution contrasts with what we found in German. While the error proportion within preverbal NIs is 5.5 % – almost exactly

as high as that of preverbal NIs in English – it is five times higher than that for postverbal NIs, which is only 1.1 %. Again, this asymmetry is significant ($p = 0.0043$, Fisher's exact test). The data are summarised in Table 2.

Table 2: Counts by NI position

	English		German	
	preverbal	postverbal	preverbal	postverbal
count	393	495	91	2,246
concord	22	161	5	24
prop.	5.6%	32.5%	5.5%	1.1 %
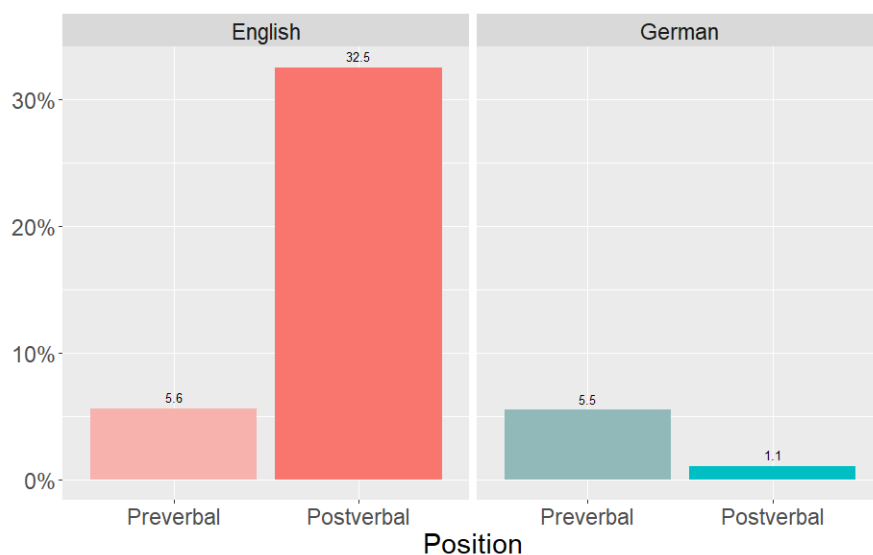
Figure 9: Proportion of NC-errors by NI position

A final result concerns the type of negation in English. In the three English corpora we investigated, we found 15,669 utterances negated with the affixal/contracted negator *n't* and 6,200 utterances containing the phrasal negator *not*. Within the utterances that show NC, 156 contain affixal negation *n't* whereas 24 are negated using the phrasal negation *not*. The proportion of NC is higher in utterances with affixal *n't* (1 %) than in those with phrasal *not* (0.4 %). Also, the ratio of affixal to phrasal negation is higher for NC-utterances (6.50) than for the overall corpora (2.53). This difference is significant ($p < .00001$, χ^2 test).

At this point, it is worth mentioning some of the things we do not find in the data. Recall that there were a handful of NC-utterances in which the NI cooccured with *never* (10) or its German counterpart *nie(mals)* (13) and there were two cases where two NIs appeared in the same clause as an additional sentential negation (11). However, apart from these utterances, there were no utterances that contained two NIs in the same clause, that is, we did not find sentences like (14) or (15).

Table 3: Counts and proportions of different negation types in English.

	n't	not	n't/not
all utterances	15,669	6,200	2.53
NC utterances	156	24	6.50
% NC	1%	0.4%	

(14) a. Nobody drew no crocodile.   b. I gave no picture to no friend.

(15) Kein Hase   hat keine Karotte gefressen.
      no   rabbit has no   carrot   eaten
      'No rabbit ate no carrot.'

In fact, for German there was no single utterance with multiple NIs and sentential negation (recall that we searched the corpora for single instances of the NIs; the search would have returned such examples, if they existed).

5   Discussion

With regard to the initial question of whether children acquiring English or German produce sentences with NC, the results clearly show that they do so. We find a substantial amount of NC-type errors for both English (184) and German (45). Nonetheless, those errors occur in only a minority of the utterances that contain a NI (20.2 % in English; 1.7 % in German). In fact, most utterances with a NI are adult-like in the sense that there is no additional sentential negative marker present. This suggests that the children never pass through a phase of acquisition where their grammar is equivalent to that of a NC language like Italian or BCS.

While NC-errors constitute a minority of NI utterances in both languages, we find two somewhat unexpected differences between English- and German-acquiring children. First, English-speaking children make many more NC-errors than their German counterparts (cf. Table 1). And second, they make them at an older age than the latter (cf. Figs. 2 and 3). English-acquiring children's production of more NC-utterances is unlikely to be the result of them being exposed to more NC input by their parents/caregivers or by media and pop culture for the following reasons. First, we did not find a single instance of NC in the recorded speech of any of the adults in the respective English corpora. Second, the four American children were recorded in the early 1960s and 1970s when NC variants of English were not as ubiquitously represented in the media and culture as in present times.[2] One might hypothesize that the higher error proportion is a consequence of English not being a DN language but rather a NC language or some hybrid type (Blanchette, 2017; Robinson & Thoms, 2021). Under this view, NC utterances are no longer errors and their greater proportion would corroborate these claims. We would, however, like to suggest an alternative explanation based on two main factors. First, it is much more natural in German to use a NI to negate a sentence than in English. The most

---

[2]Of course we cannot exclude the possibility that the children were exposed to NC in the speech of their peers or extended family who do not feature in the recordings.

natural way to express the proposition that it is not the case that Emma ate an apple is (16a) in German whereas (16b) is dispreferred. In contrast, English speakers prefer the equivalent of (16b), i.e. (17b), over the equivalent of (16a), i.e. (17a).

(16) a. Emma hat keinen Apfel gegessen.
      Emma has no   apple eaten
     'Emma ate no apple.'

    b. Emma hat nicht einen Apfel gegessen.
       Emma has not an   apple eaten
      'Emma didn't eat an apple.'

(17) a. Emma ate no apple.   b. Emma didn't eat an apple.

As a consequence, it is likely that German children receive more input that contains NIs, which enables them to figure out their correct meaning and usage earlier than English children. A second factor is the much richer and more regularized system of negative polarity items (NPIs) in English as opposed to German. In negated sentences, these NPIs most often occur with the overt sentential negator *not/n't*. Since there is some competition between NIs and NPIs, at least in object position, children might struggle to distinguish the two. This is corroborated by the observation that at early ages children use NPIs as if they were NIs, that is, as expressing the negation of a proposition (Davidson, 2020; Illingworth *et al.*, 2022). Taken together, these factors are not only able to account for the higher error proportion and delayed error peak in English, but also for the observation that English children only start to properly use NIs about 13 months later than German children (cf. Fig. 4).

Turning to the intriguing difference in the positioning of NIs between the two languages, we make three key observations: (i) the majority of NIs appear postverbally in German while the distribution is much more balanced in English (cf. Fig. 8); (ii) the error proportion among the preverbal NIs is almost equal between English (5.6 %) and German (5.5 %) (cf. Fig. 9); and (iii) the error proportion is much higher with postverbal NIs (32.5 %) as compared to preverbal ones in English whereas it is much lower (1.1 %) in German (cf. Fig. 9). Observation (ii) suggests that the difficulty with preverbal NIs has the same source in both languages. Observation (i) might be explained if we assume that there is something difficult about preverbal NIs and that, as a consequence, children try to avoid them. That is, as a V2 language, German readily allows word order changes such that a NI, even if it is the subject, can appear postverbally. Thus, the majority of NIs appears in postverbal position. As word order is stricter in English, children simply cannot avoid producing a preverbal NI, if that NI is the subject. That children have difficulty with preverbal NIs and tend to avoid them if possible dovetails with findings by Bill *et al.* (2019). In an elicitation study based on a picture description task, they observed that adults almost exclusively produced a description with a preverbal NI (18a) whereas children strongly preferred the meaning-equivalent sentence where the NI occurs postverbally (18b). We leave for future research here what exactly makes preverbal NIs difficult for children.

(18) a. **Keine** Katze trägt einen Hut.   b. Alle Katzen tragen **keinen** Hut.
     no   cat   wears a   hat   all cats   wear no   hat
    ‘No cat is wearing a hat.’   ‘All cats are not wearing a hat.’

As for observation (iii), the near absence of errors with postverbal NIs in German suggests that whatever causes the preverbal NIs to be difficult for children does not likewise affect the postverbal position. That English children nonetheless show a higher error rate for postverbal NIs as compared to German can be attributed to their abovementioned struggle to distinguish NIs from NPIs. Since NPIs are not licensed in preverbal position in negated sentences they do not compete with preverbal NIs. This explains the asymmetry between error proportions with preverbal and postverbal NIs in English.

Finally, the observation that NC-errors occur significantly more often with contracted negation *n't*, which is commonly taken to be a syntactic head, than with phrasal negation *not* could be taken to support the view that there is a link between the head-status of negation and the presence of NC (Zeijlstra, 2004, 2021; *pace* Maldonado & Culbertson, 2021).

6 Conclusion

We presented a thorough corpus study investigating whether and to what extent English- and German-acquiring children produce sentences with apparent NC as suggested by results of previous comprehension and learning studies. While we found a substantial number of such sentences the majority of children's NI-utterances are adult-like in the sense that they did not show NC. It is therefore unlikely that there is a phase during acquisition where English or German children entertain a NC grammar. The observed differences in quantity and distribution of NIs and NC between English and German can be explained by independent properties that differ between them such as the presence vs. absence of a rich and regular system of NPIs or strict vs. relatively free word order. They therefore do not stringently support claims that English is underlyingly a NC language (Miller, 2012; Blanchette, 2017; Robinson, 2022).

References

Behrens, H. 2006. The input-output relationship in first language acquisition. *Language and Cognitive Processes* 21. 2–24.

Bill, C., K. Yatsushiro, & U. Sauerland, 2019. Asymmetries in children's negative determiner production. Poster, Boston University Conference on Language Development (BUCLD) 44.

Blanchette, F. 2017. Micro-syntactic variation in american english negative concord. *Glossa: a journal of general linguistics* 2. 1–32.

Brown, R. 1973. *A first language: The early stages*. Cambridge, MA: Harvard University Press.

Davidson, K., 2020. A negative concord stage in negative polarity acquisition. Poster, Boston University Conference on Language Development (BUCLD) 45.

Grimm, A. 2007. *The Development of Early Prosodic Word Structure in Child German: Simplex Words and Compounds*. Potsdam, Germany: University of Potsdam dissertation.

Illingworth, C. H., J. W. D. Kang, H. Gibbs, K. Davidson, & R. Feiman, 2022. Negative polarity or negative concord? some children think 'any' means 'no'. Poster, BUCLD 47.

Lieven, E., D. Salomo, & M. Tomasello. 2009. Two-year-old children's production of multiword utterances : A usage-based analysis. *Cognitive Linguistics* 30. 481–508.

Lieven, E., & S. Stoll. 2013. Early communicative development in two cultures. *Human Development* 56. 178–206.

Lintfert, B. 2009. *Phonetic and Phonological Development of Stress in German*. Stuttgart, Germany: University of Stuttgart dissertation.

MacWhinney, B. 1991. *The CHILDES project: Tools for analyzing talk*. Hillsdale, NJ: Erlbaum.

Maldonado, M., & J. Culbertson. 2021. Nobody Doesn't Like Negative Concord. *Journal of Psycholinguistic Research* 50. 1401–1416.

Miller, K. 2012. Sociolinguistic variation in Brown's Sarah corpus. In *Proceedings of the 36th annual Boston University Conference on Language Development*, ed. by A. K. Biller, E. Y. Chung, & A. E. Kimball, 339–348, Somerville, MA. Cascadilla Press.

Miller, M. 1979. *The Logic of Language Development in Early Childhood*. Berlin: Springer-Verlag.

Moscati, V. 2020. Children (and some adults) overgeneralize negative concord: The case of fragment answers to negative questions in Italian. *University of Pennsylvania Working Papers in Linguistics* 26. 169–178.

Nicolae, A. C., & K. Yatsushiro, 2020. Not eating kein veggies: negative concord in child German. Linguistic Evidence 2020, Proceedings.

Penka, D. 2011. *Negative Indefinites*. Oxford: Oxford University Press.

Progovac, L. 1994. *Negative and positive polarity: a binding approach*. Cambridge: Cambridge University Press.

Robinson, M. 2022. *Negative concord as a window into social perception of morphological and syntactic variables*. New York: New York University dissertation.

Robinson, M., & G. Thoms. 2021. On the Syntax of English Variable Negative Concord. In *Proceedings of the 44th Annual Penn Linguistics Conference*, p. 195–204. ScholarlyCommons.

Tagliani, M., M. Vender, & C. Melloni. 2022. The acquisition of negation in Italian. *Languages* 7. 116.1–23.

Thornton, R., A. Notley, V. Moscati, & S. Crain. 2016. Two negations for the price of one. *Glossa: a journal of general linguistics* 1. 1–30.

Wagner, K. R. 1985. How much do children say in a day. *Journal of Child Language* 12. 475–487.

Wagner, M. 2006. *First Steps to Communication: A Pragmatic Analysis*. Tübingen: Narr Verlag.

Zeijlstra, H. 2004. *Sentential negation and negative concord*. University of Amsterdam dissertation.

Zeijlstra, H., 2021. Types of Negative Concord. DGfS 2021, slides.