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# All linguists did not go to the workshop; none of the Germans but some of the French did: The role of alternative constructions for quantifier scope

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In this paper, we will present crosslinguistic data on the interpretation of negation over quantifier scope in sentences like “All children did not go to the zoo.” Questionnaire data show that English as well as German speakers prefer a linear scope interpretation of the quantifier and the negation, where it is true for all children that they did not go to the zoo. French speakers, however, strongly prefer the inverse scope interpretation where some but not all children did not go to the zoo. The preference for linear scope is moreover stronger for German speakers than for English speakers. It diminishes with age for French and English, but not for German speakers. We will argue that language differences result from two constraints: the availability of a “close” alternative in the language and the topicality of a preverbal subject. An unambiguous alternative corresponding to inverse scope in the “all-not” construction can easily be achieved in English and German by fronting the negation as in “Not all children went to the zoo”. The corresponding construction is not available in standard French. The particularly strong preference for linear scope in German will be argued to be linked to the stronger topicality of preverbal subjects in German main clauses.

## 1. Introduction

When you look at meaning equivalent versions of the proverb that not everything that looks nice and shiny is necessarily precious, you discover an interesting difference in word order between French, English and German. While the “all”-quantifier precedes the negation in French and English, the order in German is inverted.

- (1) **Tout** ce qui brille **n'est pas** de l'or.  
**All** that glitters is **not** gold.  
Es ist **nicht alles** Gold, was glänzt.

The French and English variants are actually ambiguous between a reading where it is true for all  $x$  that if  $x$  glitters it is not gold, a statement which seems

empirically wrong, and a reading where it is not true for all  $x$  that if they glitter they are gold or that there exists some  $x$  that glitters but is not gold.

- (2) a.  $\forall x[\text{glitter}(x) \rightarrow \neg \text{gold}(x)]$   
 b.  $\neg \forall x[\text{glitter}(x) \rightarrow \text{gold}(x)]$   
 b'.  $\exists x[\text{glitter}(x) \wedge \neg \text{gold}(x)]$

The interpretation in (2a) is often referred to as the linear or direct scope reading, the reading in (2b) as the inverse scope reading because the negation takes wide scope over the quantifier that is preceding it.

This ambiguity is not available for the German version of the proverb. Only the empirically correct interpretation that not everything that glitters is gold is possible here. In all three languages the negation has wide scope over the all quantifier in the relevant interpretations of (1). Note, however, that this interpretation in German corresponds to the linear scope interpretation since the negation precedes the all-quantifier in the German example while it corresponds to an inverse scope interpretation in English and French because the negation comes second. It is notable that German does not use the parallel word order to French and English (*Alles, was glänzt, ist nicht Gold.*).

In this paper, we will argue that the difference in ordering of quantifiers and negations across the three languages is not random. French, English, and German show systematic differences with respect to preferences of sentences that are ambiguous between a linear scope interpretation and an inverse scope interpretation of all-quantifiers and negation.

For ambiguous constructions like (3), we will show that French speakers have a strong preference for inverse scope while German speakers strongly prefer linear scope. English speakers show a slight preference for linear scope but less pronounced than German speakers so that the inverse scope reading is also accessible.<sup>1</sup>

- (3) a. Alle meine Freunde sind nicht in den letzten Marvel-Film gegangen.  
 b. All my friends didn't go to the last Marvel movie.  
 c. Tous mes amis ne sont pas allés au dernier film de Marvel.

We will argue that these differences are the result of differences in the grammar of the three languages under investigation here. Close alternatives to (3) exist for German and English which are only compatible with a wide scope interpretation of the negation (4), thus corresponding to the inverse scope reading of (3). The parallel alternative in French may occur in very informal spoken French (in particular in eastern French variants) but it is highly marked and not available in standard French.

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<sup>1</sup> We will come back to the question of why the word order demanding an inverse scope reading is used in English for (1) in the Discussion.

- (4) a. Nicht alle meine Freunde sind in den letzten Marvel-Film gegangen.  
 b. Not all my friends went to the last Marvel movie.  
 c. ?? Pas tous mes amis sont allés au dernier film de Marvel.

This difference between German and English on the one side and French on the other side predicts a preference for linear scope for ambiguous constructions as in (3) for German and English based on the Gricean conversational maxim of clarity. Reanalysis will be necessary to arrive at the inverse scope interpretation. We will moreover argue that the particular role of the preverbal position in German main clauses as a default topic position makes this reanalysis more difficult than in English. If we assume that negations have a tendency to take wide scope over universal quantifiers, an inverse scope preference can be predicted for French.

The paper will be structured as follows: After summarizing predictions from earlier work on scope ambiguities, we will point out previous work on the role of alternative constructions in ambiguity resolution. We will then provide arguments for the specific role of the preverbal position in German. The predictions of our account will then be tested in a fully parallel study on English, French, and German.

### 1.1 Linear scope and inverse scope

Looking at the psycholinguistic literature, the preference pattern for quantifier ambiguities in sentences as in (5) used to be that they are interpreted in the sequence they occur (e.g. Johnson-Laird, 1969; Tunstall, 1998). *Every* will thus take wide scope over *a* in (5a), so that every child will climb a different tree, while *a* will take wide scope over *every* in (5b) so that there is only a single child that climbs every tree.

- (5) a. Every child climbs a tree.  
 b. A child climbs every tree.

Frazier (1999) makes similar predictions with her *Minimal Lowering Principle* (*Lower only when necessary; e.g. Interpret a DP in its surface position if possible*, page 119). This preference can, however, be modified by the exact nature of the quantifier as well as the grammatical role of the quantified DP. Ioup (1975) suggests hierarchies for quantifiers as well as for grammatical roles specifying their respective preference for taking wide scope. In (6), quantifiers higher on the list show a stronger preference for wide scope such that “*Each child climbed a few trees.*” and “*A few trees were climbed by each child.*” would both be interpreted with *each* taking wide scope, meaning that for each child there are a few possibly different trees that it climbs. In (7), the hierarchy suggests that topics have the highest preference for wide scope. We will come back to the topic preference later. For the “all...not” constructions under investigation in this paper, we will assume that negations prefer taking wide scope over universal quantifiers everything else being equal.

(6) each > every > all > most > many > several > some<sub>pl</sub> > a few (Ioup, 1975: 73-4)

(7) Topic > Deep and surface subject > Deep subject or surface subject > Prepositional object > Indirect object (IO) > Direct object (DO) (Ioup, 1975: 78-81)

The interaction of sequential interpretation of quantifiers and lexical or functional preferences has been explained from different perspectives. Fodor (1982) suggests a reanalysis solution to the modifying effects of quantifier type and grammatical role. She assumes that quantifiers are interpreted in sequential order such that the first quantifier systematically takes wide scope. Depending on plausibility considerations and lexical properties of the quantifiers this initial analysis can however be reanalyzed. Kurtzman & MacDonald (1993) suggest a multifactorial approach that does not imply an initial preference for linear or inverse scope interpretations across constructions. They find a linear scope preference for active sentences like (5a,b) but no systematic preference for passive constructions and a marginal preference for the second NP to take wide scope in complex NP constructions as in (8) so that there is only one admiral of whom George has each photo.

(8) George has each photo of an admiral.

In an eyetracking study, Patterson et al. (2008) similarly don't find a systematic preference for linear scope. They show that reading times increase when preferences based on lexical or functional hierarchies (Ioup, 1975) conflict. Similar to Kurtzman and MacDonald, they suggest that linear and inverse scope interpretations compete during sentence interpretation and that the competition is resolved based on more than one factor.

Most of the experimental studies in the psycholinguistic literature look into which factors influence the interpretation of quantifier scope and when (Dwivedi, 2013; Urbach et al., 2015), in only one language, which is most of the time English. To our knowledge, experimental studies so far have not systematically looked into crosslinguistic differences with respect to the interpretation of scope ambiguities by adults (for crosslinguistic studies on the acquisition of quantifier scope, see for example Katsos et al., 2016 for an overview of 31 languages). We suggest that languages may differ systematically in their interpretation of "all...not" constructions based on the availability of close alternative constructions and on the topical status of the preverbal subject. We will provide evidence that fine grained differences in alternative constructions influence sentence processing in the following section.

## 1.2 The role of alternative constructions in ambiguity resolution

Alternative constructions have been suggested to underlie processing differences across languages for a variety of constructions across languages. One prominent example is the explanation for language differences in relative clause attachment ambiguities (9) proposed by Gilboy et al. (1995). They argue that crosslinguistic differences for relative clause attachment preferences that have been playing a relevant role in the psycholinguistic literature can be explained by a combination of Construal (Frazier & Clifton, 1995) and the Gricean conversational maxim of clarity (Be clear and unambiguous). If unambiguous alternatives for one of the attachments of the relative clause exist in a language, such as the Saxon genitive in English (*the teacher's son*), a cooperative speaker will prefer the alternative attachment site for the ambiguous construction. The existence of the Saxon genitive alternative would thus be part of the explanation why English speakers tend to attach relative clauses in sentences like (9) to the second NP *the teacher* more often than Spanish or French speakers since attachment to the first NP could be unambiguously expressed with the Saxon genitive alternative.

(9) The son of the teacher who lived in France

Another very prominent alternation is the null vs overt pronoun alternative that exists in some (e.g. Italian, Spanish, Portuguese) but not in other (e.g. English, French, German) languages. Following Carminati (2002) a division of labor can be established for languages with the null/overt subject pronoun distinction so that null pronouns prefer subject antecedents and overt pronouns object antecedents. As a consequence, superficially similar sentences as (10) across languages, will show different interpretational preferences. English and German speakers will have a preference for the subject of the preceding clause as the antecedent of the pronoun while Portuguese speakers will have a preference for the object.

- (10) O atleta [Subj] consultou o ortopedista [Obj] no hospital quando ele regressou da viagem a Itália. (Portuguese)  
*The athlete [Subj] consulted the orthopaedist [Obj] at the hospital when he returned from the journey to Italy. (English)*  
 Der Sportler [Subj] konsultierte den Orthopäden [Obj] im Krankenhaus, als er von der Reise nach Italien zurückkehrte. (German)

As Fernandes et al. (in press) show, the strength of the object preference for overt pronouns in sentences like (10) depends on the availability of the alternative null pronoun construction. Languages that use null pronouns less frequently, for example Brazilian Portuguese, show a less clear preference for object antecedents or no preference at all. The preference can moreover be influenced by the experimental context. Making the null pronoun alternative more accessible by

increasing its frequency in the experimental context, increases the preference of overt pronouns for object antecedents for Brazilian speakers.

Similar effects of alternative constructions on pronoun resolution have been found in non-prodrop languages when a construction exists that unambiguously demands a particular antecedent. Hemforth et al. (2010) have shown that in sentences like (11), German and English speakers prefer a subject antecedent for the overt pronoun (*she/sie*) while French speakers prefer an object antecedent.

(11)

Die Polizistin begrüßte die Floristin, bevor *sie* nach Hause ging. (German)

The policewoman greeted the florist before *she* went home. (English)

La policière a salué la fleuriste avant qu'*elle* rentre à la maison. (French)

The reason for these crosslinguistic differences in pronoun resolution is the existence of an alternative construction in French (12) that obligatorily takes a subject antecedent for the PRO-form.

(12) La policière a salué la fleuriste avant de PRO rentrer à la maison.

Baumann et al. (2014) combine form-based alternatives (null vs overt pronoun) and construction-based alternatives in their experiments on pronoun resolution in European Portuguese (13). For the subordinate clause conditions (*antes que*, 13 a,c), an alternative construction exists (*antes de*) where only the subject of the main clause is available as the antecedent of the PRO-form as for French *avant de*. No such alternative exists for the conditions where the relevant pronoun is in a separate sentence (13b,d). The null pronouns (13a,b) should favor subjects antecedents, the overt pronouns (13c,d) object antecedents. Baumann et al.'s questionnaire experiment shows additive effects of both types of alternatives so that object antecedents were chosen most often in sentences like (13a), where an alternative construction and an alternative pronominal form exist, both alternative constructions favouring subject antecedents.

(13)

a. O pintor viu o pescador, antes que ele abra a janela.

*The painter saw the fisherman before he opened the window.*

b. O pintor viu o pescador. Depois ele abriu a janela.

*The painter saw the fisherman. After that he opened the window.*

c. O pintor viu o pescador, antes que abra a janela.

*The painter saw the fisherman before (he) opened the window.*

d. O pintor viu o pescador. Depois abriu a janela.

*The painter saw the fisherman. After that (he) opened the window.*

Similar to Gilboy et al. (1995), Bauman et al. refer to (a probabilistic version of) the Gricean conversational maxim of Clarity to explain language differences. Highly accessible unambiguous or strongly biased alternatives will influence the interpretation of an ambiguous construction because the listener will assume that a

cooperative speaker would have used the unambiguous construction had that interpretation been intended.

In this paper, we will suggest that the existence of highly accessible alternatives is playing a role for crosslinguistic differences in the interpretation of the “all...not” construction as well. If the wide scope interpretation of the negation can be obtained by simply fronting the negation (“not all”), the narrow scope interpretation, corresponding to linear scope will be preferred for the “all...not” construction (see Gennari & MacDonald, 2006, for evidence that adult English speakers avoid using “all...not” constructions). Before turning to our crosslinguistic experiment testing this assumption, we will focus on the role of topicality for scope preferences, in particular with respect to the German Vorfeld position.

### 1.3 The preverbal position in German main clauses (Vorfeld-Position)

The preverbal position in German main clauses (typically the sentence initial position) can in principle be occupied by any constituent. This relative freedom has consequences for the information structural interpretation of constituents that actually appear in this position. While topics seem to have a tendency to occur sentence initially across languages (e.g., Vallduví and Engdahl 1996), this seems to be particularly the case for German (e.g., Molnár, 1991). In English, the preverbal position is mostly reserved for the subject, which is often taken as a default topic. However, non-subject topics cannot fill this position. Filippova & Strube (2007) report data from corpus studies and forced-choice experiments showing that inactive or not yet established sentence topics (addressation topics, TA, Jacobs, 2001, similar to Reinhart’s, 1982, aboutness topics) have a strong preference to appear in the Vorfeld (14a), while established or active addressation topics appear mostly as pronouns after the finite verb or auxiliary with the Vorfeld being filled by a frame-setting topic (TF, 14b, Jacobs, 2001).

(14)

- a. *Marie Curie*<sub>s</sub> wurde am 7. November 1867<sub>s</sub> als Maria Salomea in Warschau geboren.  
*Marie Curie*<sub>s</sub> was on 7th November 1867<sub>s</sub> as Maria Salomea Sklodowska Sklodowska in Warsaw born.  
 ‘Marie Curie was born in Warsaw on the 7th of November 1867 as Maria Salomea Sklodowska.’
- b. *Zusammen mit ihrem Mann Pierre Curie und dem Physiker Antoine Henri Becquerel*<sub>s</sub> erhielt sie<sub>s</sub> 1903 den Nobelpreis für Physik].  
*Together with her husband Pierre Curie and the physicist Antoine Henri Becquerel*<sub>s</sub> received she<sub>s</sub> 1903 the Nobel prize in physics.  
 ‘Together with her husband Pierre Curie and the physicist Antoine Henri Becquerel, she received the Nobel prize in physics in 1903.’ (Filippova & Strube, 2007, p. 474)



In our experiments, we will only present sentences in isolation, out of context. All addressation or aboutness topics will thus be inactive or non-established. This means that, following Filippova and Strube's results, the preverbal subject should have a strong preference to be interpreted as aboutness topics. As mentioned before, English and French preverbal subjects tend to be topics as well. However, given the configurational constraints for English subjects, information structural constraints are less strong than in German (see Hemforth et al., 2015, for a similar argumentation with respect to crosslinguistic effects of the topical status of the preverbal subject for relative clause attachment). From the existence of alternative constructions for the inverse scope reading of "all-not" constructions in German and English, we predicted a preference for linear scope for both languages. Now, taken together with a preference for topics to take wide scope as established by Ioup (1975), we can expect the linear scope preference for German to be stronger than the English preference.

## 2. Scope preferences in English, French, and German: A questionnaire study

To test our hypotheses, we ran a fully parallel questionnaire study on *all...not* constructions in English, French, and German with translation equivalent materials in the three languages.

### 2.1 Methods

*Participants.* 60 French, 60 English, and 60 German participants participated in one of three online surveys in their respective mother tongue. The surveys were hosted by ibex farm. The English participants were paid for their participation via Amazon.com's Mechanical Turk. French participants were recruited from the RISC website and were not paid for participation. German participants either volunteered to participate, or received experiment-credits for participations, if they were students of the Cognitive Science program in Freiburg. Participants were asked to indicate their native language and country of origin, but payment was not contingent on their responses to these questions. We filtered participants who indicated that their native language was not the language of the particular experiment. Participants who indicate that they had more than one native language were also excluded. These restrictions caused the elimination of 10 French, one English, and two German participants' data across the three experiments, leaving data from 50 French (34 female, 16 male), 59 English (21 female, 38 male), and 57 German (44 female, 13 male) participants. Their age ranged from 18 to 60 (median 26, mean 31.2) years for the German participants, between 19 and 75 (median 32, mean 40.7) years for French participants, and between 19 and 59 (median 33, mean 36) years for English participants.

*Stimuli.* 10 items like (3) were constructed in German and translated to English and French. The soundness of the translations was confirmed by native speakers

of the respective language. Each item was accompanied by two sentences that had to be rated independently. The first sentence (L) expressed a meaning compatible with the linear scope reading (L), the second sentence was compatible with inverse scope (I).

- (15a) Alle meine Freunde sind nicht in den letzten Marvel-Film gegangen.  
 (L) Keiner meiner Freunde ist in den letzten Marvel-Film gegangen.  
 (I) Manche meiner Freunde sind in den letzten Marvel-Film gegangen.
- (15b) All my friends didn't go to the last Marvel movie.  
 (L) None of my friends saw the last Marvel movie.  
 (I) Some of my friends saw the last Marvel movie.
- (15c) Tous mes amis ne sont pas allés au dernier film de Marvel.  
 (L) Aucun de mes amis n'est allé au dernier film de Marvel.  
 (I) Certains de mes amis sont allés au dernier film de Marvel.

Three practice items and 20 filler items from two other experiments were added.

## 2.2 Procedure.

Items were presented one by one. Each stimulus was comprised of the target sentence, and the two interpretation sentences expressing the linear scope and inverse scope reading, respectively (15). Both interpretation sentences were accompanied with a five point rating scale, on which participants had to rate how well they fitted to the target sentence. Ratings were coded between 1 for “Not at all”, and 5 for “Very good fit”. Participants rated both interpretations for each target sentence.

## 2.3 Data analysis.

Ratings were submitted to a linear mixed effects regression using the *lmer*-function from the R-package *lme4*, version 1.1-15 (Bates et al., 2015). Language (German, English, French) was included as a between participant predictor, interpretation (linear vs inverse scope) as within participant predictor. Age (centered) of the participant also entered the model, as well as all possible interactions between the three variables. In addition of random intercepts of items and participants, random slopes for interpretation and language, and their interaction per item were also included, as well as the random slope for interpretation per participant. The model formular was “rating ~ interpretation \* language \* age.c + (interpretation | vp) + (interpretation \* language | item.id)”.

P-values were computed with the *lmerTest*-package (Kuznetsova et al., 2017), using Satterthwaite approximation of degrees of freedom. Sum-coding was used for model-fitting, using the *contr.Sum* function from the *car* package (Fox and Weisberg, 2011). Estimates and 95%-confidence intervals in figures 1 and 2 were computed with the *effects*-package (Fox, 2003)

## 2.4 Results

Table 1 shows the coefficients of the model fit. The model revealed an advantage of linear scope independent of language ( $t = 3.39$ ). However, the highly reliable interaction contrast of interpretation and French language ( $t = -9.93$ ) indicates that French participants preferred the inverse scope interpretation, whereas English did not deviate from the general preference for linear scope. Figure 1 illustrates the cross-linguistic variation of interpretation preferences for negation scopes, where French appears to exhibit the opposite inverse-scope preference to the German linear scope preference. English also shows a linear-scope preference, but not as pronounced as German.

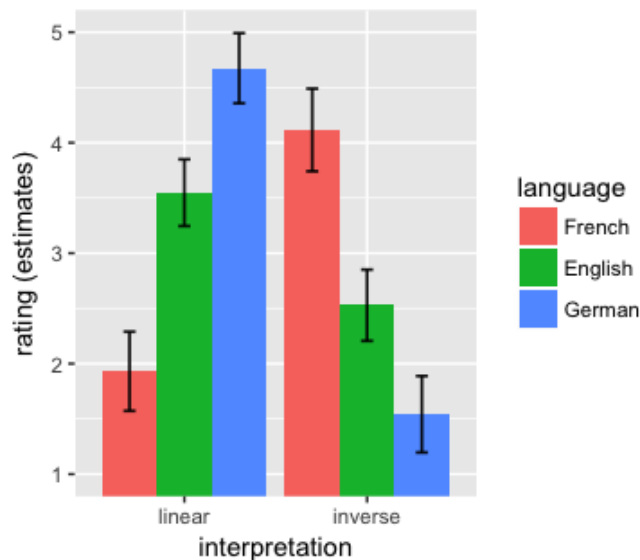
*Table 1:* Linear mixed effects regression (lmer) coefficients

	estim	se	df	t	p
(Intercept)	3.056	0.021	80.5	146.66	0.000 ***
interpretation[S.linear]	0.328	0.097	156.7	3.39	0.001 ***
language[S.French]	-0.033	0.031	60.1	-1.09	0.281
language[S.English]	-0.019	0.028	129.2	-0.68	0.501
age.c	-0.001	0.002	167.3	-0.92	0.360
interpretation[S.linear]: language[S.French]	-1.422	0.143	143.5	-9.93	0.000 ***
interpretation[S.linear]: language[S.English]	0.183	0.131	159.8	1.40	0.163
interpretation[S.linear]:age.c	0.001	0.007	161.2	0.08	0.933
language[S.French]:age.c	0.000	0.002	165.1	-0.18	0.855
language[S.English]:age.c	0.003	0.002	161.5	1.27	0.207

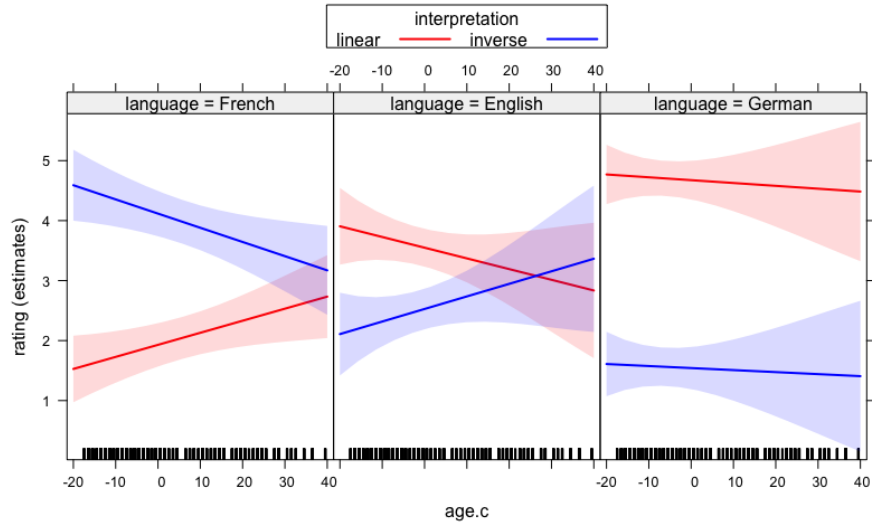
interpretation[S.linear]: language[S.French]:age.c	0.021	0.009	160.8	2.42	0.016 *
interpretation[S.linear]: language[S.English]:age.c	-0.020	0.011	160.4	-1.83	0.068 .

The model fit also revealed a three-way interaction contrast between interpretation and age for the French language ( $t = 2.42$ ), and a marginal three-way contrast between interpretation and age for English participants ( $t = -1.83$ ). Figure 2 illustrates the effects of age on the interpretation preference in the three particular languages. In French and English, but not German, the language specific interpretation bias appears to be carried by younger participants and disappears with higher age.

*Fig 1: Model estimates (least square means) and 95% confidence intervals for rating scores as a function of language and negation scope interpretation*



*Fig. 2: Model estimates (least square means) and 95%-confidence intervals for rating scores as a function of language, negation scope interpretation and age of the participants (centered)*



### 3. Discussion

As predicted, French differs from both German and English in that inverse scope is the preferred interpretation of ambiguously negated all-quantifications, whereas German and English speakers prefer linear scope. We predicted this pattern from the fact that in German and English grammars, there is an alternative construction with a reverse ordering of “all” and “not” (4), which is very strongly biased towards the inverse scope interpretation of the “all ... not” construction. German and English show a marginal difference once age is taken into account with a numerically stronger linear scope preference already for younger German adults but, more importantly, no decrease of this preference with age.

The general pattern of our data is predicted by two constraints:

- i. If a highly accessible unambiguous alternative exists for one of the meanings of an ambiguous construction, assume that the speaker chose this construction to express the other meaning. (Gricean maxim of clarity)
- ii. Topics want to take wide scope (Ioup, 1975). Subjects are interpreted as more topical in languages with flexible preverbal positions.

This combination of constraints predicts preference patterns for other languages that will have to be tested in future research. It would for example predict that not all Romance languages will behave alike. In Catalan, the relevant constraints are very close to the German constraints: An alternative construction for the inverse scope reading of the “all...not” construction exists (16b) and the preverbal position can but does not have to be filled with the subject. Catalan informants (Nuria

Esteve Gibert, pers. comm.) confirm that they have a very strong preference for the linear scope reading of (16a) in line with our predictions.

- (16) a. Tots els nens no van anar al parc infantil.  
All children did not go to the playground.  
b. No tots els nens van anar al parc infantil.  
Not all children went to the playground.

It is important to note here, that the predictions we make only concern the interaction of quantifier and negation scope across languages. We are not aware of any differences in obvious alternative constructions for other kinds of scope ambiguities such as in sentences like “Every child climbed a tree.” across the languages investigated in this paper. We may still expect stronger linear scope preferences for German than for English and French because of the Topic constraint but this will have to be tested in future experiments.

With respect to age, our interpretation has to be speculative for now since we did not predict any effect. One problem is that we cannot be sure that this is really an age effect and not a cohort effect. Preferences in English and French may have become stronger over time independent of participants age. An unpublished corpus analysis on French (Corpus Frantext, Pascal Amsili, pers. comm.) suggests, however, that this is not the case. The strong preference for inverse scope can be seen in written French corpora across the last century. Moreover, differences between younger and older adults with respect to quantifier interpretation have been reported before. Kemtes & Kemper (1999) show that while younger adults preferred continuations compatible with a clear linear scope preference in sentences like (17), preferring (17a) as well as in (18), preferring (18b), older adults, in particular those with lower working memory scores, always preferred the singular continuation (linear scope for 17: 17a; inverse scope for 18: 18b).

- (17) An actor used every prop.  
a. The actor ...  
b. The actors ...

- (18) Every actor used a prop.  
a. The prop ...  
b. The props ...

Clark and Kar (2011) find that interpretational biases attenuate with age (and with semantic dementia) with similar kinds of materials. An interesting finding in our experiments is that aging seems to affect interpretational biases for English and French, but not for German. A possible reason for this difference may be that the German preference is triggered by two constraints, the existence of an alternative construction and the preference for topics to have wide scope. A

possible interpretation for the age effect could be that the role of alternative constructions diminishes with age but not the “wide scope for topics” constraint.

Our data suggest that English speakers have a linear scope preference for “all ... not” constructions. However, looking back to the beginning of this paper, English patterned with French in the proverb “All that glitters is not gold.”, which easily takes the inverse scope reading contrary to the German “Es ist nicht alles Gold, was glänzt.”, where the negation has to precede the all-quantifier to arrive at the intended interpretation. Why does English pattern with French and not with German? Two reasons can be put forward here: We already argued before that the inverse scope reading is more easily accessible in English than in German because the Topic constraint plays a less important role. Another reason may be that the inverse scope reading of “all...not” constructions is actually more frequent in English than in German corpora (Neukom-Hermann, 2016). Interestingly, the majority of the cases off “all...not” constructions in English in this corpus study are formulaic expressions such as “all is not lost”. There may thus be a stylistic niche for inverse scope interpretations in formulaic expressions.

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