The interpretation of ‘some’: Experimental evidence

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Abstract

Previous developmental studies have shown that the computation of scalar implicatures based on the scale <some, all> represents a problem for children that significantly exceeds the difficulty of the computation of scalar implicatures based, e.g., on scales of exact numbers or scales of conjoined referring expressions such as <a dog; a dog and a cat; a dog, a cat and a cow> (Papafragou and Musolino 2003; Barner et al. 2011, among others). Barner et al. claim that young children accept some in situations which could be more appropriately described by all (e.g., they say yes to the question Are (only) some of the animals sleeping? when all three of the animals are sleeping) because they are still not aware of the fact that all is a member of the same scale that includes some. This paper argues that the source of children’s difficulties with interpreting some and its Hungarian equivalent néhány is that some/néhány is ambiguous. It has a non-partitive interpretation, corresponding to ‘a few’, which forms a scale with non-partitive many, and a partitive reading, corresponding to ‘a subset of’, which forms a scale with all. The two variants of néhány/some have different distributions; they are selected by different predicates, and in Hungarian, they occur in different structural positions. For adults, the structural position, the prosody, the internal structure of the some phrase, and/or the selectional properties of the predicate determine the interpretation of some in most cases. We hypothesized that young children are not sensitive to the partitivity feature of some phrases arising in different contexts; they first acquire the non-partitive reading, which they overgeneralize for a while. The paper gives account of two experiments testing and confirming this hypothesis. Experiment 1, a forced choice sentence-picture matching task, showed that the primary, default reading of some NPs for six-year old Hungarian children is the ‘a few’ interpretation. Experiment 2, a truth value judgement task, demonstrated that children also accept the ‘not all’ interpretation of some, and the acceptance rates of the ‘a few’ and the ‘not all’ readings are similar irrespective of the partitivity feature of the some NP in the given context.

Keywords: scalar implicature, some, counting quantifier, partitive, Hungarian, language acquisition

1. Introduction

Whereas adults interpret some e.g. in Some horses jumped over the fence as ‘some but not all’, children understand it as ‘some and possibly all’ (Noveck 2001; Papafragou & Tantalou 2004; etc.). It has been claimed that the basic meaning of plural some is ‘some and possibly all’, and the ‘some but not all’ reading is a pragmatic inference, a scalar implicature, which children cannot access – see Noveck (2001), Chierchia et al. (2001), Papafragou and Musolino (2003), Guasti et al. (2005), Foppolo et al. (2012), Huang and Snedeker (2009), Katsos and Bishop (2011), Barner et al. (2011). The assumption that children generally have problems with computing scalar implicatures cannot explain though why pragmatic inferencing has proved to
be much easier for them in the case of scales involving cardinal numbers than in the case of the scale involving some and all (Papafragou & Musolino 2003).

Recently it has been proposed that a scalar implicature is often a problem for children because they lack knowledge of the relevant scalar alternatives. That is, young children accept some in situations which could be more appropriately described by all because they are still not aware of the fact that all is a stronger alternative of the same scale that includes some (Barner et al. 2011; Foppolo et al. 2012; Pagliarini et al. 2018).

We argue that the source of children’s difficulties with interpreting some and its Hungarian equivalent néhány is that some/néhány is ambiguous. It has a non-partitive interpretation, corresponding to ‘a few’, which forms a scale with non-partitive many, and a partitive reading, corresponding to ‘a subset of’, which forms a scale with all.1 The two variants of néhány/some have different distributions; they are selected by different predicates, and in Hungarian, they occur in different structural positions. We have hypothesized that for young children, the primary reading of some NPs is the non-partitive reading; this is what explains their behaviour in the experiments cited above. We tested this assumption with two experiments to be presented in this paper.

The paper is organized as follows: section 2 introduces néhány, the Hungarian existential quantifier. In section 3, we present linguistic evidence demonstrating that a néhány ‘some’ NP has either a partitive group-denoting reading, or a non-partitive counting interpretation, or both, depending on the context. Section 4 surveys previous experiments testing children’s interpretation of some. Section 5 presents our own experiments with néhány. Section 6 is a conclusion.

2. ‘Some’ in Hungarian

The Hungarian equivalent of some is néhány. Hungarian developed two series of indefinite pronominal/proadverbial elements prefixed with an existential quantifier, namely:

\[
\begin{align*}
\text{né-ki} & & \text{vala-ki} \\
\text{some-who} & & \text{some-who `somebody’} \\
\text{né-mi} & & \text{vala-mi} \\
\text{some-what} & & \text{some-what `something’}
\end{align*}
\]

1 Many also has a non-partitive reading, paraphraseable as ’a large number of’, and a partitive or proportional reading, paraphraseable as ’a large subsection of’. This well-known ambiguity is discussed in connection with examples (14a,b), and (17a,b)-(18a,b).
In Old Hungarian, the pairs appear to have been synonyms, but by now a semantic split has taken place between them: the elements of the né-series denote a set of multiple individuals, whereas the elements of the vala-series denote a single indefinite individual, e.g.:

(1) a. Péter néha boldog volt.

Peter sometimes happy was
‘Sometimes Peter was happy.’

b. Péter valaha boldog volt.

Peter sometime happy was
‘Sometime [in the past] Peter was happy.’

(2) a. Néhol 15 fokot mérték az éjjel.

somewhere -15 centigrade-ACC measured.3PL the night
‘At some places, -15 centigrades was measured at night.’

b. Valahol 15 fokot mérték az éjjel.

somewhere -15 centigrade-ACC measured.3PL the night
‘At a certain place, -15 centigrades was measured at night.’

(3) a. Írtam néhány levelet.

write.PAST.1SG some letter.ACC
‘I wrote some letters.’

b. Írtam harminc-valahány levelet.

write.PAST.1SG thirty-some letter.ACC
‘I wrote thirty-some letters.’
Presumably as a consequence of the meaning split, néki ‘somebody’ has fallen out of use, and valahány ‘some’ has become very rare. In present-day Hungarian, the equivalent of some as a countable determiner is néhány.  

3. Group-denoting versus counting néhány: linguistic evidence  
For adults, a some NP in English or a néhány NP in Hungarian is often ambiguous, e.g.:

(4) Találkoztam néhány diákkal.

meet.PAST.1SG some student.with

‘I met some students.’

The Hungarian sentence and its English equivalent in (4) can mean both that I met a small indefinite number of students, and that I met a (small) subset of a contextually given set of students. (To what extent the ‘small’ component is part of the latter, partitive meaning, as well, appears to be individual dependent – as was revealed by the reactions of the adult control group of our experiments. In the experiments of Degen and Tanenhaus (2015), the default set size associated with some by English adults is 6-8.)

In certain structural positions in the functional left periphery of the Hungarian sentence, the néhány phrase ceases to be ambiguous. The neutral Hungarian sentence contains three preverbal fields: a topic field (the specifier of an iterable TopP), a distributive quantifier field (the specifier of an iterable DistP), and an immediately preverbal slot harboring a non-referential, predicative complement of the verb (the specifier of PredP) – as shown in (5) (for details, see Szabolcsi (1997) and Author (2008; 2010) among others).

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2 An Old Hungarian example:
(i) s neky-k kewueket hagŷtnak uala ew rŷa (Jókai Codex 1370/1448: p. 21)

and somebody-PL stones throw-3PL be-past he onto

‘and some people were throwing stones at him’

3 The equivalent of the modifier some, which can also be used with uncountables, yielding a referentially vague item, is valami:
(i) Akarok venni neki vala-mi ajándékot.

want.1SG buy.INF him some-what present

‘I want to buy her some [sort of] present.’

4 The distributive quantifiers also have postverbal scope positions, therefore they are assumed to be left- or right-adjoined to PredP by Author (2010).
The evidence for the separation of the three fields includes syntactic, prosodic, and semantic arguments. Namely, elements in the three fields have different distributions, i.e., different relative positions with respect to sentence adverbials and to one another. Primary stress falls on the left edge of the post-topic section, i.e., on the filler of Spec,DistP, or, if no DistP is projected, on the filler of Spec,PredP. The filler of Spec,PredP and the verb following it form one phonological word. The three slots are associated with different logical functions.

In topic position, the néhány phrase is understood to denote a (small) subset of a contextually given set – see example (6), where the topic status of the néhány phrase is ensured by its position preceding the universal quantifier in Spec,DistP, the locus of primary stress (denoted by ’). (6a) and (6b) represent the same structure, with the grammatical functions distributed in different ways; they illustrate that word order in the preverbal section of the Hungarian sentence is determined by logical role rather than grammatical functions.

(6) a. [TopP Néhány diák [DistP ’minden professzorral [PredP konzultált]]]
   some student every professor.with consulted
   ‘Some students consulted with every professor.’

   b. [TopP Néhány diákkal [DistP ’minden professzor [PredP konzultált]]]
   some student.with every professor consulted
   ‘With some students, every professor consulted.’

The topic of the sentence represents the logical subject of predication, therefore, it must have restricted reference, i.e., must be specific. Partitivity corresponds to a type of specificity (Enç 1991; Farkas 2002), thus the partitive interpretation associated with néhány is a manifestation of its specificity feature.
The non-partitive interpretation of *néhány*, corresponding to ‘a few’, is evoked in the specifier of the PredP projection, a slot reserved for the non-referential complement of the verb (e.g., a verbal particle, a predicative nominal, or a non-specific theme or goal nominal). The filler of Spec,PredP has the smallest possible scope (Szabolcsi 1983), and this is also true of the *néhány*-phrase in Spec,PredP (see 7b). Whereas in partitive *néhány* NPs, e.g., those in (6a,b), phrasal stress falls on *néhány* – as required by the regular stress rules of Hungarian, in non-partitive *néhány* NPs, e.g., those in (7a,b), phrasal stress falls on the nominal determined by *néhány*.

(7)  

a. [PredP *néhány ‘diák érkezett*]
   some student arrived
   ‘Some students arrived.’

b. [DistP ‘Mind-három professzor [PredP *néhány ‘diákkal konzultál’*]
   all-three professor some student with consults
   ‘Each of the three professors are consulting with some students.’

The left periphery of the Hungarian sentence can include a focus slot between PredP and DistP, in the specifier of a focus phrase (FocP). The focus elicits verb movement from Pred to Foc.

(8)

A *néhány* phrase in Spec,FocP can be [+/-partitive], i.e., it can either mean ‘a few, not many’, or it can mean ‘a (small) subset of a contextually given set, not the whole set’ – see *néhány diák* ‘some students’ in (9). When it is understood as [+partitive], its alternative also has this feature, hence what *néhány diák* ‘some students’ excludes is ‘all students’. When the *néhány* phrase is understood as [-partitive], the excluded alternative is the [-partitive] reading of ‘many students’.
Since the verb always moves up into the Pred head, and in the presence of a focus, it moves on into the Foc head, an immediately preverbal constituent can, in principle, occupy either Spec, PredP or Spec, FocP. However, the filler of Spec, FocP and the filler of Spec, PredP behave differently under negation. FocP negation elicits no further verb movement, resulting in a ‘Neg–Spec, FocP–V’ order – which is just as ambiguous as the non-negated focus construction in (9):

(10)a. [NegP Nem [FocP (csak) ’NÉHÁNY DIÁKKAL konzultáltam [PredP t₁ ...]]] hanem sokkal.
   not only some student.with consult.PAST.1SG but many-with
   ‘I consulted not only with some students but with many.’

b. [NegP Nem [FocP (csak) ’NÉHÁNY DIÁKKAL konzultáltam [PredP t₁ ...]]] hanem minddel.
   not only some student.with consult.PAST.1SG but all-with
   ‘I consulted not only with some students but with all.’

PredP negation, on the contrary, elicits V-to-Neg movement, yielding a ‘Neg–V–Spec, PredP’ order (11a; 12a). A non-partitive néhány phrase inside a negated PredP is marginal; it tends to be replaced by the negative polarity indefinite egy... sem ‘not even one; no’ (11b; 12b):

(11)     a. ?[NegP ’Nem érkezett [PredP néhány diák t₁ ...]]
        not arrived some student
        ‘It is not the case that some students have arrived.’

b. ?[NegP ’Nem érkezett [PredP egy diák sem t₁ ...]]
   not arrived one student even
   ‘No student arrived.’

(12)     a. ?[TopP A professzor [NegP ’nem konzultált [PredP néhány diákkal t₁ ...]]]
         the professor not consulted some student.with
         ‘It is not the case that the professor consulted with some students.’

b. ?[TopP A professzor [NegP ’nem konzultált [PredP egy diákkal sem t₁ ...]]]
   the professor not consulted one student.with even
   ‘The professor did not consult with any student.’
The claim that the different preverbal positions of the Hungarian sentence let in different types of quantifiers was first made by Szabolcsi (1994; 1995). She claimed that the topic position is open to group-denoting quantifiers such as a fiú ‘the boy’, hat fiú ‘six boys’; the distributive quantifier position is open to universals, among others; whereas the specifier of PredP can take so-called counting quantifiers such as pontosan hat fiú ‘exactly six boys’, kevés fiú ‘few boys’, hatnál kevesebb fiú ‘less than six boys’, SOK fiú ‘MANY boys’ etc. The difference between the counting and non-counting quantifiers is procedural. The mode of operation of group-denoting (and distributive) quantifiers is “predicate and +/-distribute”, and that of counting quantifiers is “count”. Group-denoting and distributive DPs are monotonically increasing quantifiers whose witness sets serve as logical subjects of predication. Their combination with a predicate asserts that the predicate holds, or does not hold, of that witness set or its elements. In contrast, the counting quantifiers specify the size of a participant of the atomic or plural event described by the verbal predicate in conjunction with the counting quantifier’s restriction. Szabolcsi (2010) associates the two interpretations with Brentano’s categorical and thetic judgments, citing Ladusaw (1994).

Szabolcsi (1994; 1995; 2010) also called attention to the fact that a noun phrase can belong to more than one quantifier type, and its behavior and interpretation in Hungarian depends on which position it occupies in the sentence structure. For example, sok fiú ‘many boys’ can stand both in Spec,DistP (13a) and in Spec,PredP (13b), and it is obligatorily distributive only in the distributive quantifier position (13a):

(13) a. \[\text{[DistP } \text{Sok fiú [PredP fel emelte az asztalt]}\]
   many boy up lifted the table
   ‘Many boys each lifted the table.’
   b. \[\text{[PredP Sok fiú emelte [VP fel t az asztalt]]}\]
   many boy lifted up the table
   ‘Many boys lifted the table.’

When functioning as a non-counting quantifier, sok assumes a partitive interpretation; it marks a value of the scale involving all. When used as a counting quantifier, it lacks partitivity; it forms a scale with few, among others. Compare the interpretations of sok in Spec,DistP and in Spec,PredP! While (14a) is a meaningful statement confronting two large subsets of a
contextually given set, (14b) involves a contradiction, making two opposing statements about an event.

(14) a. [DistP 'Sok diák [PredP 'el jött a tüntetésre]], sok diák 'nem jött el. many student off came the demontration to many student not came off

‘Many students have come to the demonstration; many students haven’t come.’

b.*[PredP 'Sok diák jött a tüntetésre]], 'nem jött sok diák. many student came the demontration to not came many student

‘*There arrived many students at the demonstration; there didn’t arrive many students.’

Notice that the sok phrase in Spec,DistP of the second clause of (14a) precedes the negative particle and is outside the scope of negation, whereas the sok phrase in Spec,PredP of the second clause of (14b) follows the negated verb, and is inside the scope of negation.

The different partitivity features of non-counting and counting quantifiers are manifested in further facts of Hungarian. Hungarian syntactically distinguishes verbs of creation and coming-into-being from their change-of-state counterparts (Szabolcsi 1986; Piñón 2006). Verbs stating the existence, or appearance, or creation of an individual have an obligatorily non-specific, hence non-partitive, internal argument – that whose existence or coming into being is asserted or negated (15a; 16a). Notice that if these verbs take a telicizing verbal particle, they express the change-of-state of an individual that has already been existing partially or in the form of a plan, and the noun phrase denoting this individual is obligatorily partitive-specific (15b, 16b). (In English, the existence/coming-into-being/creation interpretation and the change-of-state interpretation are not distinguished formally. The ‘there is…’ construction enforces the existence/coming-into-being reading, but a ‘preverbal subject, verb’ complex is ambiguous. For a detailed semantic analysis of the two readings, see Piñón (2006).)

(15) a. Vendégek/*a vendég/*Mari vendége /*minden vendég érkezett.

   guests /the guest /Mary guest-3SG/ every guest arrived

   ‘There arrived guests/*the guest/*Mary’s guest/*every guest.’

b. *Vendégek/a vendég/Mari vendége /*minden vendég meg érkezett.

   guests /the guest /Mary guest-3SG/every guest PRT arrived

   ‘Guests/the guest/Mary’s guest/every guest arrived.’
(16) a. Dolgozatot/*minden dolgozatot írtam.
    paper.ACC /every paper.ACC write.PAST.1SG
    ‘I wrote (a) paper/every paper.’

    b. *Dolgozatot/minden dolgozat-ot meg írtam.
    paper.ACC /every paper.ACC PRT write.PAST.1SG
    ‘I wrote (a) paper/every paper.’

The *sok* determiner of a noun phrase complementing a particleless verb of existence, coming-into-being or creation is understood as ‘a large number of’ (17a, 18a), whereas the *sok* determiner of a phrase complementing a particle verb expressing the change-of-state of a presupposed referent is understood as ‘a large subset of’ (17b, 18b):

(17) a. Sok vendég érkezett.
    many guest arrived
    ‘There arrived a large number of guests.’

    b. Sok vendég meg érkezett.
    many guest PRT arrived
    ‘A large subset of the guests arrived.’

(18) a. Sok hibát találtam a dolgozatban.
    many mistake.ACC find.PAST.1SG the paper.in
    ‘I found a large number of mistakes in the paper.’

    b. Sok hibát meg találtam a dolgozatban.
    many mistake.ACC PRT find.PAST.1SG the paper.in
    ‘I found a large subset of the mistakes in the paper.’

In Hungarian, *néhány* ‘some’ NPs behave similarly to *sok* phrases in that they can occur in different preverbal positions, where they represent different quantifier types. A *néhány* phrase can stand in Spec,TopP, where it behaves as a group-denoting quantifier, or it can stand in Spec,PredP, where it acts as a counting quantifier. The test demonstrating the interpretive difference of the partitive-specific non-counting use in Spec,TopP/DistP and the non-partitive counting use in Spec,PredP yields the same result in the case of *néhány* as in the case of *sok*. Compare with (14a,b):
(19) a. [Top P Néhány diák [PredP 'el jött a tüntetésre]], néhány diák 'nem jött el.
   some student off came the demonstrated to many student not came off
   ‘Some students have come to the demonstration; some students haven’t come.’

   b.*[PredP Néhány 'diák jött a tüntetésre]], ‘nem jött néhány diák.
   some student came the demonstration to not came some student
   ‘*There arrived some students at the demonstration; there didn’t arrive some students.’

We attest the same correlation between the interpretation of the quantifier and the partitivity requirement imposed on it by the selecting predicate in the case of néhány phrases as we observed in the case of sok phrases. Thus a néhány phrase representing the non-partitive internal argument of a verb of existence or coming-into being means ‘a small number of …’. A néhány phrase representing the partitive-specific internal argument of a change-of-state particle verb, on the contrary, means ‘a (small) subset of a contextually given set of…’:

(20) a. [PredP Néhány 'vendég érkezett]]
   some guest arrived
   ‘There arrived a small number of guests.’

   b. [TopP Néhány vendég [PredP 'meg érkezett]]
   some guest PRT arrived
   ‘A (small) subset of the guests arrived.’

(21) a. [PredP Néhány 'hibát találtam a dolgozatban]
   some mistake.ACC find.PAST.1SG the paper.in
   ‘I found a small number of mistakes in the paper.’

   b. [TopP Néhány hibát [PredP 'meg találtam a dolgozatban]]
   some mistake.ACC PRT find.PAST.1SG the paper.in
   ‘I found a (small) subset of the mistakes in the paper.’

In sum: the countable determiner néhány ‘some’ is ambiguous between a partitive (more precisely, partitive-specific) reading, corresponding to ‘a (small) subset of’, and a non-partitive, non-specific reading, the equivalent of ‘a small number of’. The partitive néhány ‘some’ forms a scale with mind ‘all’, whereas the non-partitive néhány ‘some’ forms a scale with the non-partitive (or non-proportional) reading of sok ‘many’. Certain sets of verbs select one or the other variant of néhány. Hungarian formally distinguishes the coming-into-being/creation
variants and the change-of-state variants of many accomplishment verbs. The former select a non-specific internal argument; the latter only accept a specific internal argument. Some-phrases representing the internal argument of coming-into-being/creation verbs only have the ‘a few’ reading, whereas those representing the internal argument of the change-of-state variants only have the ‘not all’ interpretation. The two types of some-phrases also have different distributions across sentence positions. In the Hungarian sentence, the topic position is only open to partitive-specific some phrases, whereas the immediately preverbal Spec.PredP slot only accepts non-partitive some NPs. (In focus position, and postverbally, both variants are possible.)

A question is to what extent the above observations hold of the English some. Szabolcsi (2010: 173) identifies counting quantifiers in English on the basis of two properties: they can host a binominal each, and they are poor inverse scope takers, and she lists some NPs among the non-counters. We have found in an inquiry of adult native English speakers that the acceptance rate of the test sentence in (22), containing a some NP hosting a binominal each, is 30%.

(22) The boys have seen some films each.

The following comment of a participant suggests that the marginal acceptability of (22) is due to the difficulty of constructing an appropriate context for it. Namely: “The kind of context in which it seems okay [is] where these boys didn't make much of an effort, say, in the context of a course. So The boys saw some films each, but otherwise they didn't make a whole lot of effort to engage with the course content or the prescribed work.”

The other criterion of counting quantifiers is satisfied more straightforwardly: where the predicate enforces a non-partitive, counting reading on a some NP, it cannot take wide scope:

(23) In front of every house, there are some trees.
   
   every > some; *every < some

A topicalized some phrase, on the contrary, clearly behaves like a group denoter; it is partitive-specific, it has wide scope (24a), and does not support a binominal each (24b):

(24) a. In front of some houses, every tree is in blossom.
   
   b.*Some films, the boys have seen each.
Although these facts may not be conclusive as regards the counting quantifier status of the non-partitive *some, some* NPs in [-specific] contexts, e.g. in the subject position of thetic, presentative sentences such as (25a), and those in [+specific] contexts, e.g. in the subject position of categorical sentences such as (25b), show the same interpretive difference as we attested in Hungarian – as was already observed by Diesing (1992) and was confirmed by von Fintel (1998):

(25)  
a. There are some major mistakes in this manuscript.
     ‘A small number of major mistakes can be found in this manuscript.’
   b. Some mistakes in this manuscript are major.
     ‘A (small) subset of the mistakes in this manuscript are major.’

The Hungarian and English facts surveyed above raise the possibility that the non-adult-like interpretation that children assign to *some* phrases in acquisition experiments may not be due to their inability of carrying out scalar implicatures. It may be the case that of the two readings of *some* phrases, the non-partitive reading, corresponding to ‘a small number of…’ emerges first and remains the default reading for some time, because that is the cognitively simpler interpretation, not requiring the identification of two referents: the set denoted by the quantifier phrase, and a superset, as well.

4. The acquisition of *some*

The first experiment testing children’s interpretation of *some* that has become widely known is that reported in Smith (1980). Smith tested how 4-7-year-old children understand the quantifiers *some* and *all*, and found that, while they correctly distinguish these quantifiers in felicitous contexts, most of them give a *Yes* answer not only to questions like (26a) but also to questions like (26b), which would still be true if the quantifier were *all*.

(26)  
a. Do some birds live in cages?
   b. Do some birds have wings?

Noveck (2001) conducted a similar experiment with older French children, testing how they interpret affirmative sentences involving the existential quantifier *certains* in sentences of the type *Some giraffes have long necks*. He found that the acceptance rate of such sentences is still
89% among 7-8-year olds, and 85% among 10-11-year olds, as opposed to the 41% acceptance rate of adults. Noveck concluded that children treat scalar terms logically; they acquire the pragmatic skill to draw scalar implicatures only at an older age.

Subsequent experiments tested children of different mother tongues, among them Greek (Papafragou and Musolino 2003; Papafragou and Tantalou 2004), German (Doitchinov 2005), Italian (Guasti et al. 2005; Foppolo et al. 2012), French (Noveck 2001; Pouscoulous et al. 2007), English (Chierchia 2001, 2004; Gualmini et al 2001; Skordos and Papafragou 2016), Hungarian (Authors 2018), etc. They involved tasks of various kinds, for example, sentence judgement task based on world knowledge (e.g., Smith 1980; Noveck 2001), truth value/acceptability judgement task based on visual evidence (Papafragou and Musolino 2003; Pouscoulous et al. 2007); felicity judgement task, i.e., selecting between alternative linguistic descriptions of a visual stimulus (Chierchia et al. 2001; Foppolo et al. 2012), picture selection task (Doitchinov 2005), action-based judgement task (Papafragou and Tantalou 2004).

These experiments have all confirmed that young children have difficulties with computing scalar implicatures, but, at the same time, they have also shown that children’s achievement depends on several factors, among them the experimental conditions, the scalar elements involved, the syntactic structure of the linguistic stimulus, and the age of the children.

Various aspects of the experimental conditions have been shown to influence children’s performance. If the sentence containing the scalar element is embedded in a rich naturalistic context, especially, if the context highlights the difference between its alternative interpretations, children are more likely to react in an adult-like fashion (Papafragou and Musolino 2003; Papafragou and Tantalou 2004; Foppolo et al. 2012). A training session also improves children’s achievement – as demonstrated by Papafragou and Musolino (2003), although Guasti et al. (2005) showed that this is not a long-term effect.

The evaluation metric used by the experimenter also influences the results obtained. Katsos and Bishop (2011) tested the false, underinformative, and informative uses of some by introducing a ternary evaluation scale (represented by a ‘small’, a ‘big’ and a ‘huge’ strawberry, respectively). Whereas only 26% of Katsos and Bishop’s 5-6-year-old subjects rejected underinformative some in a binary truth value task, 89% of them assigned the middle value to underinformative descriptions, which is unexpected if children’s use of some is determined by logic. Katsos and Bishop’s conclusion is that children are sensitive to underinformativeness.

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5 The visual world paradigm, too, has appeared in experiments testing adults’ interpretation of scalar implicatures – see, e.g., Huang and Snedeker (2009), Grodner et al. (2010), Degen and Tanenhaus (2016).
and their acceptance of underinformative *some* in binary judgement tasks is not evidence of their incompetence with implicatures but is due to their tolerance of pragmatic violations.

The question may arise why children didn’t accept under-informative *some* expressions as optimal answers under the ‘a few’ interpretation of *some*. Our hypothesis is that the animation used in the stimuli, reinforced by the experimenter’s comments, evoked the distributive determiner *each* so strongly that *some* under any interpretation seemed suboptimal. Namely, the animation always showed members of the relevant set manipulated by the protagonist one by one, with each action acknowledged by the experimenter separately. In the case of the sentence *The mouse picked up some of the the carrots*, for example, the mouse moved from the right side of the screen to the set of five carrots five times, and each time carried one carrot back to its starting position. Each time the mouse came back with a carrot, the experimenter commented ‘Look, he picked up a carrot’. The emphasis was clearly on repeating the action as long as each carrot has been affected.

As demonstrated by several former experiments, children’s success with scalar implicatures varies with the type of scale involved. Numerical scales, scales formed by such verb pairs as *start* and *finish*, and scales formed by disjunction and conjunction are difficult to a different degree for children (see Noveck (2001) Papafragou and Musolino (2003), and Barner et al. (2018), among others). Papafragou and Musolino (2003), testing Greek preschoolers’ ability to draw scalar implicatures, found a significant difference also between the interpretations of the scale *<some, all>* and the scale *<two, three>*. Their subjects had to judge the truth value of sentences involving *some* (*of*) in contexts which satisfied the semantic content of *all* (*of*), and sentences involving *two* (*of*) in contexts which satisfied the semantic content of *three* (*of*), e.g., they had to judge the truth value of (27a) and (27b) in a situation where all three members of a group of three horses jumped over a log.

(27)  a. Two of the horses jumped over the log.
    b. Some of the horses jumped over the log.

Whereas the children rejected 65% of the sentences involving *two*, they only rejected 12.5% of the sentences involving *some*. In a follow-up experiment, a preliminary training, and the introduction of contexts that made the stronger alternative salient, led to higher rejection rates, but they did not eliminate the difference between the *<some, all>* scale and the numerical scale (the rejection rate rose to 90% in the case of the *<two, three>* scale, but only to 52.5% in the case of the *<some, all>* scale).
Barner et al. (2011) compared children’s ability to access a stronger scalar alternative in the case of context-dependent scales versus context-independent scales involving some. Four-year-old children were shown pictures in which three out of three objects fit a description (e.g., three animals were sleeping), and were asked to answer questions that relied on context-independent alternatives (e.g., Are (only) some of the animals sleeping?) or contextual alternatives (e.g., Are (only) the cat and the dog sleeping?). The children answered yes to questions involving a context-independent scale in two thirds of the cases even when the word only was used, but correctly answered no to questions involving a context-dependent scale. The authors concluded that children fail to compute scalar implicatures because they lack knowledge of the relevant scalar alternative to the word some. Children know that some and all denote different set relations; what they need is additional learning in order to rapidly and automatically access lexical items as scalar alternatives. They become aware of scale members by a gradual association of syntactically replaceable alternatives. The scale that the authors associate with some is <a, some, many, most, all>. However, as we argued in Section 3, this scale is a conflation of two scales: the „counting” scale <a, some, many>, and the partitive scale <some, most, all>, the members of which cannot replace each other in various syntactic contexts. We assume that the source of children’s difficulties is the fact that some belongs to two different scales (in fact, more than two if we also regard the singular some), and children’s default choice may be the scale that does not include all.

Miller et al. (2005) noticed that some is interpreted differently in the presuppositional context of (28a), and in the non-presuppositional context of (28c), where the some phrase represents the object of a verb of creation. Their main research question was the role of stress in the interpretation of presuppositional some (28b), though. In various act-out tasks, they tested the following three constructions:

(28) a. C1: Make some faces HAPPY (unstressed some/presuppositional)
    b. C2: Make SOME faces happy (stressed some/presuppositional)
    c. C3: Make some HAPPY faces (unstressed some/non-presuppositional)

They found that children correctly associate no scalar implicature with non-presuppositional – i.e., non-partitive – some (the percentage of partitive responses in C3 was 10%). However, unlike adults, they also fail to enforce a scalar implicature with unstressed presuppositional (i.e., partitive) some (the percentage of partitive responses in C1 was 50%). At the same time, children are able to access the quantity implicature associated with presuppositional some when
it is focused (the percentage of partitive responses in C2 was 90%). In the view of Miller et al., scalar implicatures are made more salient by contrastive focus on the quantifier because the implicature is part of the alternative set generated by the focus. Miller et al., however, did not test the interpretation of stressed non-presuppositional some, i.e., they did not test (29), and did not mention, let alone resolve, the apparent contradiction between the non-presuppositionality of the object of a creation verb and the implicature arising with the alternative set generated by its focusing.

(29) Make SOME happy faces

In fact, focused presuppositional/partitive and non-presuppositional/non-partitive some phrases generate partitive and non-partitive alternative sets, respectively – as was discussed in connection with the Hungarian examples in (8)-(9). The excluded alternative of the partitive-specific SOME faces in Make SOME faces happy is ALL faces, whereas the excluded alternative of the non-partitive SOME happy faces in Make SOME happy faces is the non-partitive MANY happy faces – in accordance with our claim that some is semantically ambiguous.

The first experiments apparently did not attribute any significance to the presence or absence of a partitive of the in the scalar expression. Foppolo et al. (2012), testing how five-year-old Italian children interpret sentences of the type Some Smurfs went by a boat, carried out an experiment in two versions: first using the simple determiner qualche ’some’, and then replacing it by the partitive alcuni dei ’some of’. They found that the use of the partitive form did not help children “to focus on a certain “quantity” in relation to a given set”; on the contrary, children’s rejection rate dropped from 42% to 38.5% (Foppolo et al. 2012: 371).

The experiments surveyed tested children of various age groups, including children as young as 2:6 – 3:5 (Huang et al. 2013) and children as old as 10-11 (Noveck 2001). It has been found that children’s achievement improves with age, but the improvement is not gradual. Foppolo et al. (2012) tested the interpretation of sentences like Some smurfs went on a boat embedded in a story satisfying the condition of plausible dissent, discussing the possibility of some of the Smurfs taking a boat, others taking a car, or all of them taking a boat. They found that 4-5-year-old children are bimodally distributed; the turning point in the interpretation of some is at the age of 6, after which children soon attain adult-like performance. The turning point obviously depends on the conditions discussed above; e.g. in Noveck’s experiment testing the interpretation of the French certains in out-of-the-blue sentences, the achievements of 7-8-year-old...
old and 10-11-year-old children are equally far from the achievement of adults (89% and 85% acceptance rates of underinformative *some* as opposed to the 41% acceptance rate of adults).

5. Experiments

The theoretical considerations discussed in section 3 and the questions raised by the experiments surveyed in section 4 prompted us to formulate the hypothesis that young children react to stimuli involving a *some* phrase in a non-adult-like manner because *some* means for them ‘a few’. Below we give account of two experiments testing this hypothesis. Experiment 1, a forced choice task, tested whether children associate with a topicalized, hence partitive-specific, *néhány* NP the meaning ‘not all of the NPs’ or the meaning ‘a few NPs’. If children most often select the picture where the *néhány* phrase denotes all the members of a small set, this would be evidence that for the majority of them, the default meaning of *néhány* is the non-partitive meaning ‘a few’, i.e., the children are not sensitive to the specificity feature associated with topics in adult language.

5.1. Experiment 1: A forced choice task

*Participants:* Children of three age groups participated in the experiments: 24 children from the ‘big kids’ group’ of a Budapest kindergarten (mean age 6;1, age range 66–84 months), as well as 20 first graders (mean age 7;6, age range: 82–96 months), and 20 third graders (mean age 9;6, age range: 112–121 months) of a Budapest primary school. (The tests were carried out shortly before the end of the schoolyear, that is why children may seem older for their grade than expected.) We also tested 16 adults.

*Materials and methods:* The children were shown 11 pairs of pictures, each pair accompanied by a sentence. They had to decide which of the two pictures the sentence describes. Six picture-sentence combinations were test stimuli; the rest of them were fillers. The test cases involved Hungarian sentences with a *néhány* ‘some’ NP in topic position, where it is expected to give rise to a partitive reading (e.g., (30) and (31)). The visual stimuli accompanying these sentences were pairs of pictures shown next to each other on a computer screen. One of the pictures represented the situation described by the sentence under the ‘a few’ interpretation of *néhány*; it showed 2-4 participants, and the property or activity described by the predicate was true for all of them (see Figures (1b) and (2a)). The other picture represented the ‘not all’ reading of *néhány*; it showed a larger number of participants (5-10 participants, roughly 2.5 times as many as the picture representing the ‘a few’ reading – see Figures (1a) and (2b)), and, crucially, the property or activity described by the predicate held only for a subset of them. The assumption
that 2-4 participants in a picture occupying half of a laptop screen are regarded as few by children was based on a pilot study.

(30) Néhány hattyú fehér.
    some swan white
    ‘Some swans are white.’

Fig. 1a: ‘not all’ reading of (30)

Fig. 1b: ‘a few’ reading of (30)

(31) Néhány gyerek bicikizik.
    some kid bicycles
    ‘Some kids are bicycling.’

Fig. 2a: ‘a few’ reading of (31)

Fig. 2b: ‘not all’ reading of (31)

The filler stimuli involved quantifiers other than some, among them minden ‘every’, csak négy ‘only four’, ötnél több ‘more than five’.

Procedure: The children were tested individually by the experimenter and a helper in a quiet room of their school. The pairs of pictures appeared on a computer screen, and they were accompanied by a sentence allegedly uttered by a puppet, recorded in advance. The child had to tell which of the two pictures the puppet was talking about. The child’s answers were recorded both on paper, and by a video camera.
Results: Responses were encoded as binary data, 1 for ‘a few’, 0 for the ‘not all’ interpretation of néhány. The mean responses of the age groups are shown in Table 1.

Table 1: ‘a few’ choices in Experiment 1

<table>
<thead>
<tr>
<th></th>
<th>'a few' choices %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarteners</td>
<td>100%</td>
</tr>
<tr>
<td>1st graders</td>
<td>80%</td>
</tr>
<tr>
<td>3rd graders</td>
<td>40%</td>
</tr>
<tr>
<td>Adults</td>
<td>0%</td>
</tr>
</tbody>
</table>

Binomial generalised mixed-effect models with random intercepts were run, with response as the dependent variable, group as the fixed effect, and participant and item as random effects. Calculations were carried out in R (R Core Team 2019), using glmer() from the lme4 package (Bates et al. 2015) and Anova() from the car package (Fox & Weisberg 2018) for the calculation of simulated p-values.

The effect of the group was highly significant ($\chi^2(3) = 25.356, p < 0.001$). Pairwise comparisons of the age groups revealed that the response patterns of adults differed significantly from those of kindergarteners ($z = 4.949, p < 0.001$), 1st graders ($z = 4.211, p < 0.001$), and 3rd graders ($z = 3.579, p < 0.001$), whereas there was no significant difference among the performance of the three groups of children (all three $z > -1.897, p > 0.058$).

Discussion:
Our experiment aimed to test how young children interpret néhány ‘some’ NPs. Our hypothesis has been that some, and its Hungarian equivalent néhány have a partitive and a non-partitive reading. For adults, the interaction of the structural position, the prosody, the internal structure of the some phrase, and the selectional properties of the predicate usually supports one of the readings and blocks the other one. For young children, however, the cognitively simpler non-partitive reading may be more easily accessible in all conditions than the partitive reading requiring the identification of two discourse referents (the set denoted by the quantified phrase, and a superset). Our experiment tested this hypothesis by a forced choice test, where subjects listened to sentences involving a topicalized, hence partitive, néhány ‘some’ phrase, and they
were offered both the ‘not all’ and the ‘a few’ readings. The results confirmed that for adults, néhány occurring in a topicalized phrase clearly means ‘not all’. For six-year-olds, on the contrary, the ‘a few’ reading is primary; it was chosen significantly more times than the ‘not all’ interpretation.

Although the mean results of all three age groups were relatively close to 50%, the great majority of children were apparently not guessing but followed clear strategies. The proportion of those giving very consistent answers, choosing the same type of interpretation in 5 or 6 cases out of 6 was 83% among the kindergarteners, 75% among the first graders, and 65% among the 3rd graders. The proportion of the children consistently opting for the ‘a few’ interpretation, and the proportion of those consistently choosing the ‘not all’ reading changed from age group to age group as shown in Table 2.

<table>
<thead>
<tr>
<th></th>
<th>Kindergarteners</th>
<th>1st graders</th>
<th>3rd graders</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘a few’</td>
<td>54%</td>
<td>35%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>‘not all’</td>
<td>29%</td>
<td>40%</td>
<td>40%</td>
<td>88%</td>
</tr>
</tbody>
</table>

In the older groups of children, both the proportion of the inconsistent answers and the proportion of consistent ‘not all’ choices was higher, which supports the hypothesis that the ‘a few’ reading appears first, and the partitive ‘not all’ reading emerges – and the ambiguity of néhány solidifies – with some delay.

The fact that children show a clear preference for the ‘a few’ interpretation around the age of six and for the ‘not all’ interpretation around the age of nine provides evidence against the view that their choices are based on the reading ‘some and possibly all’, the so-called logical meaning of néhány/some. This meaning is compatible with both members of the picture pairs, hence if the children had relied on the meaning ‘some and possibly all’, their choices would have been random.

The relevant distinction that children become sensitive to around the age of nine is the [+/-partitive] feature attributable to some. It is the recognition of the [+partitive] feature of topics that opens the way to realizing that some and all are scale members, and the use of some implicates the under-informativeness of all.

5.2. Experiment 2: A truth value judgement task
Experiment 1 served to identify children’s default interpretation of topicalized néhány phrases; however, it left open the question whether the reading chosen by the children is the only accessible reading or the preferred reading for them. So as to answer this question, we carried out a second experiment. Experiment 2 also aimed to clarify whether children’s interpretation of a néhány phrase is affected by its structural position and prosody, more precisely, by the [+/-partitive] feature associated with that position and stress pattern.

Participants: The children participating in Experiment 2 were the same as those participating in Experiment 1. We also tested an adult control group of 16 adults.

Materials and methods: The children had to judge the truth value of 23 sentence–picture pairs, 12 test cases and 11 fillers. The test sentences involved a néhány phrase in 2 x 2 conditions. The factors the effect of which we tested were (i) topic position (in Spec,TopP, preceding the pitch accent), associated with a [+partitive] feature, versus non-topic position (in Spec,PredP, bearing a pitch accent), associated with a [-partitive] feature in adult Hungarian, and (ii) ‘a few’ versus ‘not all’ reading shown in the visual stimulus. These factors yielded the following four conditions:

C1: [+topic] néhány NP, ‘not all’ reading, e.g.:

\[
(32) \quad [\text{TopP} \quad \text{Néhány szamár} \quad [\text{PredP} \quad \text{szürke}]]
\]

\[
\text{some donkey grey}
\]

‘Some donkeys are grey.’

![Fig. 3: Picture accompanying ex. (32)]

C2: [+topic] néhány NP, ‘a few’ reading, e.g.:

\[
(33) \quad [\text{TopP} \quad \text{Néhány ceruza} \quad [\text{PredP} \quad \text{ki van hegyezve}]]
\]

\[
\text{some pencil PRT is sharpened}
\]
‘Some pencils have been sharpened.’

Fig. 4: Picture accompanying (33)

C3: [-topic] néhány NP, ‘a few’ reading, e.g.:
(34)  [PredP Néhány barack nő az ág-on]
    some apricot grows the branch-on
    ‘Some apricots are growing on the branch.’

Fig. 5: Picture accompanying (34)

C4: [-topic] néhány NP, ‘not all’ reading, e.g.:
(35)  [PredP Néhány alma van a kosár-ban]
    some apple is the basket-in
    ‘There are some apples in the basket.’
Each condition was represented by 3 examples. The fillers were sentence involving quantifiers such as \textit{minden} ‘every’, \textit{legtöbb} ‘most’, \textit{legalább három} ‘at least three’, \textit{csak négy} ‘only four’, etc.

\textbf{Procedure:} Experiment 2 was carried out in the same session as Experiment 1. The pictures were presented to the child on a computer screen one by one, together with the corresponding sentence allegedly uttered by a puppet, recorded in advance. The child was told that the puppet explaining what she saw in each picture did not have her glasses on, hence she did not always see the picture properly. The child had to judge whether the puppet said correctly what the picture showed. The child’s answers were recorded both on paper, and by a video camera.

\textbf{Results:}
The sentences were found to be true in the great majority of cases in all conditions. The proportions of yes answers in the four conditions are shown in Table 3.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
 & C1:[+topic] ‘not all’ & C2:[+topic] ‘a few’ & C3:[-topic] ‘a few’ & C4:[-topic] ‘not all’ \\
\hline
Kindergarteners & 78\% & 82\% & 83\% & 65\% \\
1st graders & 80\% & 70\% & 82\% & 77\% \\
3rd graders & 80\% & 62\% & 77\% & 77\% \\
\hline
All children: & 79\% & 71\% & 81\% & 73\% \\
Adults: & 69\% & 49\% & 98\% & 55\% \\
\hline
\end{tabular}
\caption{Acceptance rates of sentences with a néhány phrase in the four conditions}
\end{table}

Responses were encoded as binary data, 1 for ‘true’, 0 for ‘false’. Binomial generalised mixed-effect models with random intercepts were run, with response as the dependent variable, the interaction of structural position ([+topic] versus [-topic]) and picture type (‘a few’ versus ‘not
all’), as well as group as fixed effects, with participant and item as random effects. Calculations were carried out in R, using glmer() from the lme4 package and Anova() from the car package for the calculation of simulated p-values.

While age group did not have a significant effect on the response patterns (all three z > 1.350, p > 0.126), the effects of sentence type (z = -2.821, p = 0.005), picture type (z= -2.528, p = 0.011) and the interaction of sentence type and picture type (z= 2.710, p = 0.007) were all significant. In the case of ‘a few’ pictures, the acceptance rate of sentences with a topicalized néhány phrase was lower, while that of sentences with a non-topical néhány phrase was exceptionally high. When ‘not all’ pictures were evaluated, the difference between the two sentence types was considerably smaller, but in this case, it was the sentence type with a topicalized néhány phrase that was accepted more frequently.

**Discussion:** Among the adults, the acceptance of non-topic néhány phrases under the ‘a few’ interpretation was practically unanimous. The acceptance of topicalized, hence partitive, néhány phrases under the ‘not all’ reading, however, was merely 69%, lower than expected. Those rejecting some of the sentence-picture combinations, e.g. that in (32), explained that for them, the topicalized néhány means ‘a relatively small subset of’, i.e., it has both the ‘not all’ and ‘a few’ meaning components. Example (32) would be true of Figure (3) if the subset of grey donkeys were smaller than the subset of brown donkeys. The acceptance of topicalized néhány phrases coupled with a visual representation corresponding to the ‘a few’ interpretation, as well as the acceptance of non-topic néhány phrases coupled with a visual representation corresponding to the ‘not all’ reading was stimulus dependent to a large extent; apparently, it depended on whether or not the participant could coerce the reading determined by the structural position of the néhány NP. For example, the topicalized néhány ceruza ‘some pencils’ in (33) coupled with a picture showing a few pencils (Figure 4) was accepted by less participants than example (36) coupled with Figure (7).

(36) \[[\text{TopP Néhány gyerek [PredP tanul]]} \]

\begin{align*}
\text{some child studies} \\
\text{‘Some children are studying.’}
\end{align*}
The adults accepting this sentence–picture combination explained that they can assume these children to represent the subset of a class where the rest of the children are not studying – i.e., they can coerce a partitive reading. In the case of a set of sharpened pencils it is harder to imagine the presence of a superset that is out of view.

Similarly, the non-topic néhány phrase in (35) under the ‘not all’ reading in Figure 6 was accepted by more adults than sentence (37) coupled with Figure 8 presumably because the apple near the basket can be considered to be outside the relevant domain of quantification more easily than the non-red pencils in the mug.6

(37) \[\text{[PredP Néhány piros ceruza van a bögrében]}\]
\[
\text{some red pencil is the mug-in}
\]
\[\text{‘There are some red pencils in the mug.’}\]

---

6 Authors (2018) present experimental evidence demonstrating the interaction of the visual representation of the domain of quantification and children’s ability to carry out scalar implicature.
The children, too, found non-topic *néhány* phrases under ‘a few’ interpretation (C3) and topicalized *néhány* phrases under the ‘not all’ reading (C1) the most acceptable. Crucially, however, they also accepted both 71% of the topicalized *néhány* NPs with ‘a few’ reading, and 73% of the non-topic *néhány* NPs with a ‘not all’ reading, and these acceptance rates are significantly different from the 49-55% acceptance rates of the adults. Whereas adults assign to non-topic *néhány* phrases the ‘a few’ reading, and tend to assign to topicalized *néhány* phrases the ‘not all’ interpretation, for kindergarteners and 1st graders, there is no significant difference between the acceptability of *néhány* phrases in the four conditions. We attested a significantly higher acceptance of the ‘a few’ reading in [-topic] contexts than in [+topic] contexts only among the 3rd graders. In the case of younger children, there is no significant correlation between the structural and prosodic conditions determining the partitivity feature of the *néhány* phrase and the interpretation they assign to it.

6. Conclusion
A series of former experiments (Noveck 2001; Papafragou and Musolino 2003; Miller, Schmitt, Chang and Munn 2005; Papafragou and Skordos 2016; Pouscoulous et al. 2007; etc.) found that children tend to accept sentences with a topical subject represented by a *some* NP (or its Greek, French etc. equivalent), e.g., *Some (of the) donkeys are grey*, in situations where the predicate holds of all the subject referents, i.e., where all the donkeys are grey. Our experiments carried out with Hungarian children have yielded similar results. Adults are believed to interpret such sentences based on Grice’s Maxim of Quantity, assuming that the speaker has been as informative as possible. A situation where all the donkeys are grey could have been truthfully described by the sentence *All (of the) donkeys are grey*, hence the speaker’s use of *some* indicates that s/he had reasons not to use a stronger term, e.g. *all*. Therefore, *Some (of the) donkeys are grey* gives rise to the scalar implicature that not all donkeys are grey. Children’s failure to carry out such implicatures was initially attributed to their pragmatic inexperience; it was claimed that for them, pragmatics does not overwrite logic (Noveck 2001). This explanation, however, cannot account for the fact that children have much less difficulty with scalar implicatures involving definite numbers (cf. e.g., Papafragou and Musolino 2003; Authors 2018). In Experiment 1 of Papafragou and Musolino (2003), children’s success rate with a scalar implicature involving the numbers *two* and *three* was 65%, whereas their success rate with a scalar implicature involving *some* and *all* was merely 12.5%. In their Experiment 2, which involved some training and some contextual manipulations, the success rate of scalar implicatures rose to 90% in the case of *two* and *three*, however, it rose only to 52.5% in the
case of *some* and *all*. These facts indicate that the particular way children relate *some* and *all* also involves a factor other than their ability to derive scalar implicatures.

The alternatives-based theory of Barner et al. (2011) claims that children’s difficulties with scalar implicature in the case of specific scales are due to a failure to generate relevant alternatives for the given scale. Thus, although children may know already at the age of two that *some* and *all* denote different set relations, they do not know that they are members of the same scale. The hypothesis we tested shares an element of this claim: in our view, children do not realize that *some* and *all* are scale mates because they identify *some* with its non-partitive variant, which forms a scale with the non-partitive *many*.

The starting point of our explanation of children’s interpretation of *some* was that *some* is inherently ambiguous; it has a [+partitive] meaning corresponding to ‘not all’, and a [-partitive] meaning corresponding to ‘a few’. For adults, the structural position, the prosody, the internal structure of the *some* phrase, and/or the selectional properties of the predicate determine the partitivity of the *some* phrase in most cases; for instance, the subject-topic *some* phrases of the test sentences of former experiments are clearly [+partitive]. Young children, however, are not sensitive to the partitivity feature arising in various contexts, or they are not aware of its significance in the interpretation of *some*. Children presumably acquire the easier, non-partitive reading first, and tend to overgeneralize it for a while. For English adults, the genitive construction in cases like *some of the donkeys are grey* would strongly suggest that the grey donkeys represent a proper subset of a relevant set of donkeys. However, *all of the donkeys* means the same as *all donkeys*, *each of the donkeys* means the same as *each donkey*, *which of the donkeys* means the same as *which donkey*, so it may not be obvious for children that the interpretation of *some of the donkeys* may be different from the interpretation of *some donkeys*.

We tested these assumptions with two experiments. The first experiment, a forced choice sentence-picture matching task, showed that six-year old Hungarian children significantly more often assign to topicalized *néhány* NPs the ‘a few’ reading than the ‘not all’ reading. Furthermore, the proportion of children who consistently (5 or 6 times out of 6) select the ‘a few’ reading is 54% among the six-year-olds, and is still 35% among the seven-and-half-year-olds, and 25% among the nine-and-half-year-olds. These results are in accord with the assumption that the reading that is first associated with *some* by young children and which remains the default reading for them for some time is the non-partitive ‘a few’ interpretation.

The second experiment, a truth value judgement task aimed to clarify whether the ‘a few’ reading of *néhány* is the only reading for the majority of children, or it is merely its primary interpretation. We tested whether children can access both readings of *néhány*, and whether
they are aware of the correlation between the structural position and prosody, and the interpretation of the néhány NP. It has turned out that children also accept the ‘not all’ interpretation of some, and the acceptance rate of both the ‘a few’ and the ‘not all’ readings is roughly the same irrespective of the partitivity feature of the some NP in the given context. The acceptance of the ‘not all’ interpretation is not significantly higher in the case of topicalized néhány phrases than in the case of non-topic néhány phrases.

The two findings: children’s initial bias towards the ‘a few’ interpretation of some, and their insensitivity to the partitivity feature of the some NP can explain children’s non-adult-like behaviour with respect to some NPs. They accept the sentence Some (of) the donkeys are grey in a situation where all of the donkeys are grey because some means for them ‘a relatively small number’, or ‘a non-empty set’, i.e., they interpret the sentence as ‘a relatively small number of donkeys are grey’. They realize that some and all can be scale members, and the use of some can implicate the infelicity of all only when, around the age of nine, they become aware of the partitivity of some phrases in topic position and in some other specific contexts.

References:


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