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**EPISTEMIC AND SCOPAL PROPERTIES OF SOME INDEFINITES**

Tania Ionin

1. **Introduction**

Farkas (1994, 2002a) points out that the concept of specificity with indefinites is notoriously non-specific, and serves as a cover term for at least three separate phenomena, namely *scopal specificity*, *epistemic specificity*, and *partitivity* (see also the summary in Ionin 2009). The focus of the present paper is on the first two types of specificity, leaving aside partitivity (also known as presuppositionality or set membership; see Enç 1991, Diesing 1992 and de Hoop 2003, among others, for discussion).

Scopal specificity refers to the ability of the indefinite to be interpreted outside the scope of an operator, such as an intensional verb, as in (1), a modal, or negation (Dahl 1970; Ioup 1977; Kartunnen 1976): i.e., this type of specificity is equivalent to wide scope.

(1) Sarah would like to read a book about butterflies…
   a. …but she can’t find it. [scopally specific: wide-scope reading (WSR) of indefinite]
   b. …but she can’t find one. [scopally non-specific: narrow-scope reading (NSR) of indefinite]

It is well-known that indefinites exhibit exceptional scope-taking behavior, being able to escape scope islands such as relative clauses (as in (2)) and antecedents of the conditional (Fodor and Sag 1982, among many others). Such exceptional scope-taking behavior – unavailable to regular quantifiers – has led to theories that analyze indefinites as non-quantificational. For example, on the choice-function approach, the determiner is translated into a variable that ranges over choice functions, which map any non-empty set in their domain to a member of this set (see Reinhart 1997, Winter 1997, Krazter 1998, and much subsequent literature). On this view, scopal specificity becomes equivalent to a choice function interpretation. On an alternative approach, Schwarzchild (2002) analyzes long-distance indefinites as ‘singleton’ indefinites, whose domain is implicitly restricted to a singleton set. Yet another approach to long-distance scope analyzes it in terms of topicality (e.g., Portner 2002, Endriss 2009).

(2) Jennifer read every book that a professor had recommended.
   a. paraphrase of the WSR of the indefinite: There is a particular professor, such that Jennifer read every book recommended by that professor.
   b. paraphrase of the NSR of the indefinite: Jennifer read every book that was recommended by any professor.

Whereas scopal specificity is concerned with the interpretation of indefinites relative to other scope-bearing expressions, epistemic specificity – also known as identifiability, speaker knowledge, or referentiality – examines the epistemic conditions on the use of the indefinite (Farkas 1994, 2002a,b; Fodor and Sag 1982; Groenendijk and Stokhof 1980; Ioup 1977; Jayez and Tovena 2006). An epistemically specific (referential) indefinite makes reference to an entity that is known by the speaker and/or is inherently identifiable (Farkas 2002b), as in (3a); conversely, an epistemically non-specific (or non-referential) indefinite makes reference

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1 It has also been observed that indefinites allow intermediate scope readings (ISRs), above the scope island but below a higher quantifier (Farkas 1981, Ruys 1992, among many others). The experiments reported in the present paper did not examine ISRs, so I leave this issue aside; for experimental findings on ISRs, see Marti (2007), Alonso-Ovalle and Menendez-Benito (2007) on Spanish; Ionin (2010) on English.
to an entity which is unknown, unidentifiable, and/or unimportant, as in (3b). For formal accounts of epistemic specificity in different frameworks, see Groenendijk and Stokhof (1980), Farkas (2002b), and von Heusinger (2002), among others.

(3) a. A student cheated on the exam. It was the guy who sits in the very back.  
   [epistemically specific, identifiable]  
   b. A student cheated on the exam. I wonder which student it was.  
   [epistemically non-specific, unidentifiable]

Epistemic specificity is closely linked to scopal specificity in that some semantic analyses of long-distance indefinite scope make reference to epistemic specificity (Fodor and Sag 1982; Kratzer 1998); in contrast, other analyses of scopal specificity do not involve epistemic specificity (Reinhart 1997; Winter 1997). Note that a scopally specific indefinite, as in (1a) or (2a), can be, but does not have to be, epistemically specific (e.g., the speaker may or may not be able to identify the particular book or professor under discussion). A scopally non-specific indefinite, as in (1b) or (2b), cannot be epistemically specific: since no individual book or professor is asserted to exist in the actual world, the speaker cannot be intending to refer to, or be able to identify, a particular book or professor.² Experimental findings of Ionin (2010) also suggest a link between scopal and epistemic specificity. Ionin found that long-distance scope readings, while in principle available, are strongly dispreferred for a indefinites (which are neutral with respect to epistemic (non-)specificity), but are freely available for a certain indefinites (which are often analyzed as epistemically specific).

Most of the literature on English indefinites has, traditionally, focused on a indefinites, the prototypical indefinite in English. As shown by the above examples, a indefinites are potentially ambiguous between scopally and epistemically specific and non-specific readings (see, e.g., Fodor and Sag 1982, Reinhart 1997). At the same time, other types of indefinites have been analyzed as being unambiguously specific or non-specific in their interpretation. In English, much attention has been given to both scopal and epistemic specificity of a certain indefinites (Hintikka 1986, Schwarz 2001, Farkas 2002b; Jayez and Tovena 2006 on un certain in French), illustrated in (4a-b). In contrast, some-indefinites are treated as epistemically non-specific (Becker 1999, Farkas 1994, 2002b), as shown in (4c). Some-indefinites are usually assumed to be neutral with respect to scopal (non-)specificity (Farkas 2002b), as discussed in more detail in the next section.

(4) a. Sarah would like to read a certain book about butterflies, but she can’t find it/#one.  
   b. A certain student cheated on the exam. It was the guy who sits in the very back.  
   #I wonder which student it was.  
   c. Susan rented some movie for us to watch yesterday. #It was The Maltese Falcon.  
   [from Farkas 2002b]

Cross-linguistically, scopal (non-)specificity been shown to play a role in the nominal systems of Lillooet Salish (Matthewson 1999), West Greenlandic (van Geenhoven 1996), and Hungarian (Farkas 1997), among other languages. Epistemic (non-)specificity has also been shown to be relevant for the nominal systems of a number of languages, including Hebrew (Givón 1981; Borer 2005; see discussion in Ionin 2006), Russian (Haspelmath 1997, Kagan 2006), German (Ebert, Ebert and Hinterwimmer, in press) and Sissala (Blass 1990). For an overview of relevant cross-linguistic data, see Haspelmath (1997) and Lyons (1999).

² There are certain exceptions to this generalization, in particular with regard to verbs of saying. For instance, in “Mary said that she saw a certain unicorn in her garden”, the indefinite may scope under the verb of saying and yet be epistemically specific – from the point of view of the agent (Mary), rather than of the speaker. See Farkas (2002b) for more discussion. Such environments are not tested in the present study.
The focus of the present paper is on singular *some* indefinites in English, and the relationship between (non-)specificity and stress on *some*. The relationship between stress (or lack thereof) on *some* and its behavior with respect to both scopal and epistemic (non-)specificity has been observed by many authors (e.g., Milsark 1977, Diesing 1992, Farkas 2002b, Giannakidou 2011), but has not been systematically explored. The experimental findings reported in this paper bear on the overall topic of this volume, namely, what it means to be a weakly referential expression, such as an indefinite.

This paper is organized as follows. Section 2 gives an overview of recent literature on the behavior of *some* indefinites. Sections 3 and 4 discuss two experimental studies that test scopal and epistemic properties of stressed and unstressed *some* indefinites, in comparison with *a* indefinites. Section 5 provides a general discussion of both studies, and section 6 concludes the paper.

2. **Some** indefinites and (non-)specificity

Singular *some* indefinites have been observed to have a number of interesting properties with regard to both epistemic and scopal specificity. First, many authors have observed that *some* indefinites are epistemically non-specific, as shown in (5): as discussed by Farkas (2002b) and Becker (1999), these examples show that the identity or even species of the individual in question is unknown to the speaker (5a-b), and/or unimportant (5c). This is further illustrated by (6): Becker (1999) points out that the sentence in (6) is incompatible with the continuation in (6a), which brings out the epistemically specific interpretation, but compatible with (6b), which brings out the epistemically non-specific interpretation (in contrast, an *a* indefinite is compatible with both).

(5)  
a. Sm guy or other called this afternoon and asked for you. [Farkas 2002b]
   b. I’ve been stung by some insect. [Becker 1999]
   c. Marc wrote some paper (or other) on indefinites and now considers himself a specialist. [Farkas 2002b]

(6) Some agent or other stole the documents from the office. [Becker 1999]
   a. ?? His name is Albert, and he’s done this before.
   b. We are interrogating all agents to figure out who did it.

While there is general agreement in the literature that *some* indefinites carry a condition of epistemic non-specificity, it is far from clear what role stress plays in this interpretation. Farkas (2002b) indicates that destressing *some* (pronouncing it as *sm*, as in (5a)) brings out the “*some* or other” interpretation (as in (5c)), which is epistemically non-specific. However, Farkas does not explicitly state that stressed *some* would have a different interpretation.

With regard to scopal specificity, there is general agreement that *some* indefinites can have both wide and narrow scope readings, and allow long-distance scope out of islands, much like *a* indefinites. This is illustrated in (7), from Farkas (2002b). The sentence in (7a) has a WSR, on which there is a specific famous Hungarian photographer under discussion, as well as an NSR, on which Keith buys every album published by any Hungarian composer (this example also has an ISR, see also footnote 1). Another example of an NSR, this time with respect to an intensional operator, is given in (7b). The only restriction on the scope-taking possibilities of *some* indefinites is that they do not normally scope underneath negation, a fact that has led to an analysis of *some* as a Positive Polarity Item (PPI) (see Ladusaw 1980, Farkas 2002b, Giannakidou 2011, among others). This last point will not be addressed in the present paper, which focuses on contexts involving quantifiers and/or intensional operators, rather than negation.
(7) [from Farkas 2002b]:
   a. Keith decided to buy every album that was published by some famous Hungarian photographer.
   b. I want to get some book about St. Petersburg because we are going there soon.
   c. I want sm book (or other) about St. Petersburg.

The role of stress in the scope-taking possibilities of some indefinites is once again unclear; Farkas (2002b) suggests that destressing some forces narrow scope with respect to an intensional operator, as in (7c): on her analysis, (7c) has only the NSR of the indefinite, whereas (7b) allows both the WSR and the NSR. Coming from a different perspective, Endriss (2009) has argued that stressing the determiner facilitates and possibly even forces long-distance scope in island contexts such as (7a). Endriss’s proposal is primarily about German, where, she argues, ein ‘a/one’ indefinites have genuine long-distance scope readings only when ein is stressed. Endriss proposes that in German, stress is a marker of topicality, and that long-distance scope is a consequence of topicality. While Endriss does not make the same claims for English, she notes (on p. 85, footnote 9) that stress on some in English may similarly facilitate long-distance scope.

An interesting question is whether some and SOME indefinites should be treated as two distinct lexical items, with different characteristics, or as a single lexical item. In the case of plural some indefinites, Diesing (1992), following Milsark (1977), has argued that while stressed SOME indefinites are strong quantifiers, which presuppose existence (as in (8a)), unstressed some indefinites are weak quantifiers, which merely assert existence (as in (8b)). Note that plural some indefinites, unlike singular some indefinites, do not appear to have any relationship to epistemic (non-)specificity, but instead simply denote quantity. In the case of singular some indefinites, Giannakidou (2011) similarly suggests that SOME and some are different lexical items, with only the former behaving like a PPI, requiring wide scope over negation.

(8) [from Diesing 1992]:
   a. SOME ghosts are in the pantry; the others are in the attic.
   b. There are some ghosts in my house.

To sum up, the experimental studies reported in this paper aim to answer the research questions in (9), about the relationship between stress on some and the two types of specificity.

(9) a. How do singular some indefinites with respect to scopal (non-)specificity?
   b. How do singular some indefinites with respect to epistemic (non-)specificity?
   c. Does stress (or lack thereof) on some influence the behavior of some indefinites with respect to epistemic and/or scopal (non-)specificity? If so, how?

These questions are theoretically neutral, and indeed the experiments are not designed to tease apart different theoretical accounts of some indefinites. Rather, the experiments are designed to establish some basic facts about the behavior of stressed and unstressed some indefinites. The potential implications of these findings for theories of indefinite interpretation will be discussed in section 5.

3. Study 1: Long-distance scope

Study 1 focused on scopal specificity. The goal of Study 1 was to examine the ability of some indefinites to take long-distance scope, and to determine whether stress on some is related to long-distance scope.
3.1. Methodology

Study 1 used a Truth-Value Judgment Task (TVJT), in which sentences were presented auditorily in the context of pictures. Participants were asked to determine whether a given sentence was true or false in the context of the accompanying picture. Two factors were varied: the form of the indefinite determiner (3 levels: *a*, unstressed *some*, stressed *SOME*) and the picture type (4 levels, as described below). The target sentences all had the form in (10a-c), with the indefinite embedded inside a relative clause modifying a universal QP; (10a-c) are potentially ambiguous between WSRs and NSRs of the indefinites (ISRs were not tested in the present study). All indefinites tested were animate.

(10) a. The teacher put away every toy that *a* child played with.
    b. The teacher put away every toy that *some* child played with.
    c. The teacher put away every toy that *SOME* child played with.

3.1.1. Experimental conditions and corresponding predictions

The four types of pictures used in Study 1 are illustrated in Figures 1 through 4 (for the sentence in (10)). Each picture consists of two panels, where the first panel depicts the event described by the relative clause (in this case, children playing with toys), and the second panel depicts the event described by the matrix clause (in this case, the teacher putting away the toys). The relationship between the children and the toys they played with, in the first panel, is established using Venn diagrams. As an illustration, consider Figure 1. Here, the ball and the blocks are in the same frame (the red one) as the boy in the upper left corner of the panel: this means that this child, and only this child, played with the ball and the blocks. In contrast, the toy train in Figure 1 is in two frames at once: the red frame, which also includes the boy in the upper left corner, and the blue frame, which also includes the girl in the upper right corner; this means that both of these children played with the toy train. The yo-yo was played with only by the girl in the upper right corner, the toy star – only by the boy in the lower left corner, and the toy duck – by both the boy in the lower left corner and the girl in the lower right corner. Finally, the toy car and the doll are outside all the frames, which means that no child played with them. All of the pictures followed this format, with some toys played with by one child, some – by two, and some – by none at all (see Figures 2 through 4). Participants were trained extensively on this format, via examples and practice items.

[INSERT FIGURES 1, 2, 3 AND 4 ABOUT HERE]

The main two picture types of interest are the WSR scenario in Figure 1, and the NSR scenario in Figure 2. In the context of Figure 1, the sentences in (10) are true on the WSR of the indefinite: it is true that there is a specific child such that the teacher put away every toy that this child played with (the teacher put away the train, ball, and blocks, and the boy in the upper left corner of the first panel played with these and only these toys). At the same time, (10a-c) are false on the NSR of the indefinite in the context of Figure 1: it is false that the teacher put away every toy that any child played with, since in fact many of the toys that were played with are left sitting on the floor. Thus, a ‘true’ response to (10a-c) in the context of Figure 1 indicates availability of the WSR.

In contrast, in the context of Figure 2, (10a-c) are true on the NSR of the indefinite: the teacher put away every single toy that was played with by at least one child; the only toys remaining on the floor are those that no child played with. By entailment, Figure 2 also makes (10a-c) true on the WSR of the indefinite: it is true that there is a specific child such
that all the toys this child played with were put away (in fact, there are four such children). Thus, a response of ‘true’ to (10a-c) in the context of Figure 2 is expected on either scope reading of the indefinite: this is a control condition.

The scenarios in Figures 3 and 4 were designed to rule out the possibility that a/some/SOME child might be interpreted contrastively, as meaning, “exactly one child – not two”. This was particularly a concern for SOME indefinites, lest the stress on SOME lead to a contrastive reading. Figure 3 teases apart the contrastive and non-contrastive WSRs of the indefinite: if participants interpret the indefinite contrastively, they should consider (10a-c) false in the context of Figure 3, since it is false that the teacher put away every toy that exactly one child played with (in fact, the teacher put away all the toys that the boy in the upper left corner played with, and all the toys that the girl in the upper right corner played with). In contrast, if the indefinite is not interpreted contrastively, then the rates of ‘true’ responses in the context of Figure 3 should be identical to those in the context of Figure 1: both Figures 1 and 3 make (10a-c) true on the (non-contrastive) WSR, and false on the NSR of the indefinite.

In a similar vein, Figure 4 teases apart the contrastive and non-contrastive NSRs of the indefinite: it is true that the teacher put away every toy that was played with by exactly one child (contrastive NSR), but it is false the teacher put away every toy that was played with by any child (regular, non-contrastive NSR), and it is also false that there is a specific child such that the teacher put away every toy that this child played with (WSR) (verification of these truth-values is left as an exercise to the reader). Thus, the only reason a participant might respond ‘true’ to (10a-c) in the context of Figure 4 is if she interprets the indefinite contrastively, and opts for the NSR of indefinite. If the contrastive NSR of the indefinite is unavailable, then only ‘false’ responses are expected in the context of Figure 4. Since indeed contrastive readings of a, some and SOME indefinites do not, intuitively, appear to be very likely, Figure 4 serves as a control condition, to ensure that participants can successfully supply a ‘false’ response when neither the regular NSR nor the regular WSR yields a true interpretation.

The truth-values for each condition, on each reading of the indefinite (WSR vs. NSR, contrastive vs. non-contrastive) are laid out in Table 1.

<table>
<thead>
<tr>
<th>condition</th>
<th>regular WSR</th>
<th>regular NSR</th>
<th>contrastive WSR</th>
<th>contrastive NSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSR (Figure 1)</td>
<td>TRUE</td>
<td>FALSE</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>NSR (Figure 2)</td>
<td>TRUE</td>
<td>TRUE</td>
<td>FALSE</td>
<td>TRUE</td>
</tr>
<tr>
<td>Contrastive-WSR (Figure 3)</td>
<td>TRUE</td>
<td>FALSE</td>
<td>FALSE</td>
<td>FALSE</td>
</tr>
<tr>
<td>Contrastive-NSR (Figure 4)</td>
<td>FALSE</td>
<td>FALSE</td>
<td>FALSE</td>
<td>TRUE</td>
</tr>
</tbody>
</table>

The predictions for the four conditions are as follows. On the assumption that contrastive readings of a, some and SOME indefinites are not at issue, we expect near-ceiling rates of ‘true’ responses to (10a-c) in the context of Figure 2, and predominantly ‘false’ responses in the context of Figure 4: the regular (non-contrastive) WSRs and NSRs yield identical truth-values in each condition. At the same time, a, some and SOME indefinites may behave differently in the context of Figures 1 and 3, where (10a-c) are true on the WSR and false on the NSR of the indefinite. Prior experimental research (Ionin 2010) has established that long-distance WSRs of a indefinites are strongly dispreferred, and that conditions such as Figure 1

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3 Such a contrastive reading does not appear very likely even for SOME indefinites; however, other versions of Study 1 were conducted on one indefinites as well as German ein indefinites, where the exactly one interpretation was a very real concern (see Authors 2011).
result in predominantly ‘false’ responses for sentences like (10a) (the methodology used in Ionin 2010 involved stories rather than pictures, but the TVJT format was used, just as in the present study). If some indefinites are completely neutral with respect to scopal (non-)specificity, we might expect them to behave just like a indefinites. If stress on SOME facilitates long-distance scope, resulting in a higher rate of ‘true’ responses to (10c) than to (10a-b) in the context of Figures 1 and 3, this would provide support for Endriss’s (2009) proposal that stress is tied to long-distance scope.4

3.1.2. Test lists

Picture type was a within-subjects variable, while determiner type was a between-subjects variable: each participant was exposed to a test version with only one determiner (i.e., only sentences of the type in (10a), or the type in (10b), or the type in (10c)), but was exposed to sentences with that determiner in all four scenarios represented in Figures 1 through 4. The rationale for making determiner type a between-subjects variable was to ensure that participants did not explicitly compare different determiners. Thus, Study 1 was comprised of three separate experiments, on a, some and SOME indefinites.

In order to avoid repeating similar pictures with the same participants, four different test lists were created in each experiment, and the sentence-picture pairings were counterbalanced across the four lists. Thus, for example a participant tested on a indefinites would hear (10a) only in the context of Figure 1, but would hear different sentences with a indefinites in the context of Figures 2 through 4; another participant would hear (10a) only in the context of Figure 2, and different sentences for the other three figures; and so on. Sixteen token sets were created: 16 target sentences, and 16 corresponding pictures each coming in the 4 variants illustrated in Figures 1 through 4 (64 pictures total). Each test list contained a single sentence-picture pairing for each of the 16 token sets, with four items corresponding to each picture type, for a total of 16 target items per list. Additionally, each test list contained 34 distracter items, which looked similar to the target items on the surface but tested different quantifiers. Fourteen of the 34 distracters reused the same pictures as the target items, but with different sentences (the other 20 used new pictures); the distracter always appeared later in the test than the target item using the same picture, to avoid any priming effects from distracters to targets. Half of the distracters were unambiguously true and half were unambiguously false. The 50 items within each list were blocked and pseudo-randomized for order of presentation (see Cowart 1997), with each test condition represented within each block, and with at least one filler item occurring immediately before and after each target item. Additionally, two test orders were created for each list by switching the order of the two halves of the test.

3.1.3. Participants and procedure

The tests were administered using the web-based survey gizmo tool. Each test list was preceded by a consent form, a color-check (to ensure participants were not color-blind), an audio-check, and three example items and three practice items, with explanations. In order to

4 Note that epistemic (non-)specificity is irrelevant to Study 1: even if some and/or SOME indefinites are epistemically non-specific, this should not affect the rate of ‘true’ responses to (10b-c) in the context of the WSR scenarios (Figures 1 and 3). For example, suppose that some indefinites are epistemically non-specific and yet allow long-distance scope: a ‘true’ response to (10b) in the context of Figure 1 would mean something like “it is true that there is some specific child such that the teacher put away every toy that this child played with (but I don’t know the identity of this child and/or the identity of this child is unimportant)”. Even though the child in question is pictured in panel 1, nothing is known about this child’s identity (the child is not named, no information about the child is provided, etc.), so the condition of epistemic non-specificity would be satisfied.
give participants a break from the test, a short background questionnaire was administered between the two test halves.

Each test item appeared on a separate page, which contained a picture and an audio-file of the corresponding sentence. The audio-files were all recorded by a female native English speaker; for items with a and with unstressed some, the speaker pronounced the sentences with maximally neutral intonation, and more emphasis on the lexical NP that followed the determiner than on the determiner itself. For items with stressed SOME, the speaker placed emphasis on the determiner.

One hundred and twenty participants took part in Study 1, 40 per experiment (a vs. some vs. SOME), ten per test list within each experiment, and five per test order of each list. All participants were adult native English speakers and the great majority were university students (additional participants who reported being native and/or bilingual in a language other than English were excluded from the data analysis). Participants were tested in a quiet booth in a psycholinguistics lab, in the presence of a research assistant, and the audio was administered via headphones.

3.2. Results

Performance on the unambiguous distracter items was at or near ceiling for all three determiner types. On the unambiguously true items, the proportions of ‘true’ responses for the experiments on a, some, and SOME were, respectively, 91%, 87%, and 91%. On the unambiguously false items, the proportions of ‘false’ responses for the three experiments were, respectively, 98%, 95%, and 98%. These numbers indicate that the participants were paying attention, and understood the test format. We now turn our attention to the target items.

The means and standard deviations for the proportion of ‘true’ responses in each condition and for each determiner type are given in Figure 5 (recall that ‘true’ and ‘false’ were the only possible response options). Several patterns immediately emerge. First, proportions of ‘true’ responses are highest, and variation (as indicated by the error bars) smallest, in the NSR scenario (Figure 2), for all three determiner types; this is expected, given that this is a control scenario which makes the target sentence true on both the NSR and the WSR of the indefinite (see Table 1). Second, proportions of ‘true’ responses in both regular WSR and contrastive-WSR scenarios (Figures 1 and 3) are higher for some than for a, and highest for SOME. Third, proportions of ‘true’ responses in the contrastive-NSR scenario (Figure 4) are quite low across the board, but higher for SOME than for the other two determiners.

We conducted a mixed ANOVA on the proportion of ‘true’ responses, with determiner as the between-subjects variable, and scenario type as the within-subjects variable. There was a significant effect of scenario type (by-subjects, F1(2.2, 252)=310, p<.001, Greenhouse-Geisser correction for violation of sphericity; by-items, F2(2.5, 11)=554, p<.001, Greenhouse-Geisser correction) and a significant effect of determiner (F1(1,117)=709, p<.001; F2(1,45)=2117, p<.001). Determiner interacted significantly with scenario type (F1(4.3, 253)=6.1, p<.001; F2(4.9, 111)=11.0, p<.001).

In order to explore the interaction, we conducted two types of follow-up analyses: we conducted four independent one-way ANOVAs comparing performance on the three determiners in each of the four scenario types, as well as three repeated-measures ANOVAs comparing performance in the four scenarios to one another for each determiner type. In
order to avoid inflating the Type I error rate, we set the alpha level at .007 (.05 divided by 7, the number of follow-up comparisons). The results of these follow-up analyses are reported in Table 2, where the top rows report comparisons among the determiner types, based on the one-way ANOVA results, and the bottom rows report comparisons among the scenario types, based on the repeated-measures ANOVA results.

Table 2: summary of statistical analyses for Study 1

<table>
<thead>
<tr>
<th>comparisons among determiner types</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>WSR scenario (Figure 1)</td>
<td>SOME &gt; some &gt; a</td>
</tr>
<tr>
<td>NSR scenario (Figure 2)</td>
<td>SOME = some = a</td>
</tr>
<tr>
<td>contrastive-WSR scenario (Figure 3)</td>
<td>SOME &gt; some &gt; a</td>
</tr>
<tr>
<td>contrastive-NSR scenario (Figure 4)</td>
<td>SOME (\approx) &gt; some = a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>comparisons among scenarios</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a indefinites</td>
<td>NSR &gt; WSR = contrastive-WSR = contrastive-NSR</td>
</tr>
<tr>
<td>some indefinites</td>
<td>NSR &gt; WSR = contrastive-WSR (\approx) contrastive-NSR</td>
</tr>
<tr>
<td>SOME indefinites</td>
<td>NSR &gt; WSR = contrastive-WSR &gt; contrastive-NSR</td>
</tr>
</tbody>
</table>

> significantly greater than  
\(\approx\) marginally greater than  
= no significant difference

To sum up, the scope-taking properties of the indefinites tested can be summarized as follows. For a indefinites, the preferred reading is the NSR; the WSR is just as unavailable as the contrastive reading. For both some and SOME indefinites, the WSR is more readily available than for a indefinites; furthermore, it is more readily available for SOME than for some indefinites, indicating that stress facilitates the WSR. The contrastive reading is just as unavailable for some indefinites as for a indefinites, but is marginally available for SOME indefinites. Importantly, however, the contrastive reading is not what’s driving the availability of the WSR for SOME indefinites: there is no difference in performance in the regular WSR and the contrastive-WSR conditions.

3.3. Discussion

The findings concerning the behavior of a indefinites are quite consistent with prior experiments by Ionin (2010), despite differences in methodology (Ionin 2010 used stories rather than pictures, and a within-subjects rather than between-subjects design, where a indefinites appeared in the same experiment as a certain indefinites). Long-distance scope readings of a indefinites are clearly dispreferred, with participants opting for the local NSR regardless of whether it makes the sentence true (Figure 2) or false (Figures 1 and 3). Substituting a with some facilitates long-distance scope, and stressing SOME facilitates it still further. This suggests that accessibility of long-distance scope is a continuum rather than a binary option, tied to the prosodic properties of the determiner.

The finding that a indefinites strongly prefer local scope is consistent with Anderson’s (2004) proposal (see also Tunstall 1998, among others) that surface-scope readings are easier to access, from the processing perspective, than inverse-scope readings: note that in Study 1, the NSR corresponded to the surface-scope reading, and the WSR – to the inverse-scope reading. A preference for the local scope reading can in principle be accounted for under a variety of theories. For example, on Endriss’s (2009) approach to long-distance scope in terms of topicality, we would say that the default reading of a indefinites is the non-topical, local reading. Alternatively, adopting Reinhart’s (1997) view of indefinites as ambiguous
between quantificational and choice function readings, we might say that the quantificational (local) scope reading is primary, and that long-distance choice function readings are not accessed as readily.

Turning to some indefinites, Endriss (2009) would say that they can be markers of topicality, and that stress on SOME makes the topical reading more prominent (a problem for this view, however, is that there is no independent test of topicality in English). Alternatively, we might say that some indefinites are allowed to have long-distance scope (through any mechanism, whether choice functions or topicality) more readily than a indefinites through some kind of Gricean competition mechanism. Given that a is the default indefinite determiner in English, and that the default scope interpretation of a indefinites is the local one, use of a different determiner (such as some) signals to the hearer that the speaker was intending a non-default scope interpretation (such as a long-distance WSR). Support for this view comes from the finding of Authors (2011) that one indefinites also allow long-distance scope more readily than a indefinites – i.e., the accessibility of long-distance scope is not specific to some, but rather available to any non-default indefinite determiner.

In order to obtain a fuller picture of how some and SOME indefinites behave, we now turn to Study 2, which examined other scopal configurations, and furthermore tested the relationship between stress on some and epistemic (non-)specificity.

4. **Study 2: Epistemic and scopal (non-)specificity**

The primary goal of Study 2 was to determine whether, as discussed in the literature, some is epistemically non-specific, and furthermore to establish whether stress on some is related to epistemic (non-)specificity. A secondary goal was to further explore the scopal behavior of some in environments other than those tested in Study 1.

4.1. **Methodology**

Study 2 used an Acceptability Judgment Task (AJT), in which participants listened to pairs of sentences and were asked to judge whether the second sentence was an appropriate continuation to the first sentence, using a scale from 1 (unacceptable) to 7 (acceptable). The first sentence always contained an indefinite in either subject or object position, and the second sentence was designed to bring out either epistemic or scopal (non-)specificity.

4.1.1. **Experimental conditions and corresponding predictions**

Four separate contrasts were tested, exemplified in (11) through (14) below. In all cases, the first sentence was a simple sentence with no embedding and no scope islands; the indefinite form was varied between a, some and stressed SOME, as in Study 1. The target indefinite was always animate, again as in Study 1.

The contrasts in (11) and (12) both test epistemic (non-)specificity, in subject and object position, respectively. In both cases, the second sentence either identifies the individual denoted by the indefinite (the (a) examples, epistemic specificity) or else denies speaker knowledge of this individual (the (b) examples, epistemic non-specificity). For ease of reference, the (a) and (b) cases in (11) and (12) are labeled as [+epistemic] and [-epistemic], respectively. The prediction is that if some and/or SOME indefinites are epistemically non-specific, we expect lower ratings for (11a) and (12a) compared to (11b) and (12b). No such difference is expected for a indefinites; it is possible, of course, that one of the continuations (either (a) or (b)) simply sounds more natural than the other, in which case we might expect slightly different ratings for (a) vs. (b) continuations for a indefinites. Performance on a indefinites thus provides a baseline for evaluating performance on some and SOME
indefinites: any naturalness effect should be manifested for all three determiner types, and any differences between a and some/SOME indefinites should be due to the epistemic properties of some/SOME indefinites.

(11) epistemic (non-)specificity on indefinite in subject position:
   a. A/some/SOME guy called my roommate this afternoon. It was my roommate’s cousin from New York. [+epistemic]
   b. A/some/SOME guy called my roommate this afternoon. I have no idea who it was. [-epistemic]

(12) epistemic (non-)specificity on indefinite in object position:
   a. I heard a/some/SOME professor on the radio last night. It was my Psych 101 professor. [+epistemic]
   b. I heard a/some/SOME professor on the radio last night. I have no idea who it was. [-epistemic]

The contrasts in (13) and (14) address scopal specificity. In (13), the indefinite is in object position and interacts scopally with an intensional operator such as want, hope, wish, need or plan. While (13a) brings out the WSR of the indefinite, (13b) supports the NSR. If some and/or SOME indefinites allow WSRs more readily than a indefinites – as found in Study 1 – then we expect higher ratings for (13a) for some/SOME than for a indefinites. As in Study 1, in configuration in (13), the NSR of the indefinite corresponds to the surface-scope reading, and the WSR – to the inverse-scope reading. Thus, if the preference of a indefinites for local scope holds across different configurations, we expect the NSR in (13b) to be more acceptable than the WSR in (13a), for a indefinites. In contrast, given the findings of Study 1, some and SOME indefinites should allow the WSR quite readily (while also allowing the NSR). However, performance on (13) may be further influenced by epistemic (non-)specificity. If some and/or SOME indefinites are epistemically non-specific, then (13a) may receive low ratings because here, a particular archaeologist appears to be known to and identifiable to the speaker: (13a) sets up not just a scopally specific reading of the indefinite, but also an epistemically specific reading. In contrast, (13b) involves epistemic non-specificity as well as scopal non-specificity.

(13) scopal specificity with respect to an intensional operator, indefinite in object position:
   a. Robert wants to marry an/some/SOME archaeologist. But she is not ready for a commitment yet. [WSR]
   b. Robert wants to marry an/some/SOME archaeologist. But he hasn’t met one yet. [NSR]

Finally, (14) examines the ability of indefinites to take narrow scope with respect to an object quantifier that has undergone QR; (14a) sets up the WSR of the indefinite, while (14b) sets up the NSR of the indefinite. Note that here, the WSR of the indefinite corresponds to the surface-scope reading of the sentence, and the NSR – to the inverse-scope reading, the opposite of the configuration in (13) as well as in Study 1. As noted earlier, prior psycholinguistic research on scope in double-quantifier sentences (e.g., Tunstall 1998, Anderson 2004) has found a strong preference for surface-scope. This in itself, independent of the type of indefinite, could potentially lead to higher ratings for (14a) relative to (14b), for both a and some/SOME indefinites. In order to bring out the felicity of the inverse-scope reading in (14b), the first sentence was always constructed so as to make the surface-scope reading somewhat infelicitous: it is more natural to imagine multiple guards standing in front of multiple buildings than one guard standing in front of multiple buildings.

Assuming that the surface-scope interpretation is the easiest one to access, we expect the WSR in (14a) to be rated higher than the NSR in (14b), for all three indefinite types. It is
unlikely that epistemic (non-)specificity would influence the ratings of (14a), since no indication is given that the guard in question is known to the speaker or identifiable. However, in principle, (14a), unlike (14b), is compatible with epistemic specificity.

(14) scopal specificity with respect to a universal quantifier, indefinite in subject position:
   a. A/some/SOME guard stood in front of every building. The guard had to keep moving around. [WSR]
   b. A/some/SOME guard stood in front of every building. The guards were on alert for possible security breaches. [NSR]

The properties of all four contrasts exemplified above, with respect to both scopal and epistemic specificity, are summarized in Table 3.

Table 3: summary of contrasts in Study 2

<table>
<thead>
<tr>
<th>condition</th>
<th>epistemic specificity?</th>
<th>scope reading?</th>
</tr>
</thead>
<tbody>
<tr>
<td>epistemic specificity in subject position (11)</td>
<td>(11a): YES (11b): NO</td>
<td>n/a</td>
</tr>
<tr>
<td>epistemic specificity in object position (12)</td>
<td>(12a): YES (12b): NO</td>
<td>n/a</td>
</tr>
<tr>
<td>scope with respect to intensional operator (13)</td>
<td>(13a): YES (maybe) (13b): NO</td>
<td>(13a): WSR, inverse-scope (13b): NSR, surface-scope</td>
</tr>
<tr>
<td>scope with respect to universal quantifier (14)</td>
<td>(14a): maybe (14b): NO</td>
<td>(14a): WSR, surface-scope (14b): NSR, inverse-scope</td>
</tr>
</tbody>
</table>

4.2. Test lists

Sentence type was a within-subjects variable, and determiner type was a between-subjects variable, for the same reasons as in Study 1. In order to avoid repeating the same sentences twice, two test lists were created; each list contained each sentence only in the (a) variant or only in the (b) variant, never both, with full counterbalancing across the two lists. Eight token sets were constructed for each contrast exemplified in (11) through (14), and each list contained eight items for each of the four contrasts, four tokens in the (a) variant and four tokens in the (b) variant, for a total of 32 target items. Each list also contained 32 distracter items, which tested other types of ambiguities (e.g., scope ambiguities with universal quantifiers and negation, and proportional vs. cardinal readings of many).

4.2.1. Participants and procedure

The tests were administered using the web-based survey-gizmo tool. Each test list was preceded by a consent form, an audio-check, a short background questionnaire, and four example items and four practice items, with explanations. Each test item appeared on a separate page, which contained an audio-file and a Likert rating scale (1 through 7) underneath the question “How acceptable is the second sentence as a continuation to the first?” The audio-files were all recorded by the same female native English speaker as in Study 1, following the same protocol for stress placement.

Eighty participants, all monolingual adult English speakers, took part in the experiment, 40 per list: 29 were tested on a indefinites (15 for list1, 14 for list2); 26 on some indefinites (13 per list); and 25 on SOME indefinites (12 for list1, 13 for list2). The slightly unequal numbers were due to the need to discard some additional participants who were native and/or bilingual in another language, and/or were outliers in terms of age (participants in their 60s and 70s were excluded, since most participants were in their 20s and 30s). Participants were
tested in a quiet booth in a psycholinguistics lab, in the presence of a research assistant, and the audio was administered via headphones.

4.3. Results

The four contrasts illustrated in (11) through (14) were tested using sentences that differed both in structure and in lexical material, and are not directly comparable to one another. Thus, the analysis focuses on performance on the two variants (the (a) and (b) variants) within each contrast, rather than comparisons across contrasts.

4.3.1. Results on epistemic (non-)specificity

We first discuss the results for the two contrasts that examined epistemic (non-)specificity, (11) and (12). Mean ratings for the corresponding four conditions are given in Figure 6. A clear difference emerges between a and some/SOME indefinites: for a indefinites, higher ratings obtained in the [+epistemic] than the [-epistemic] conditions, while the opposite was the case for both some and SOME indefinites. Since a indefinites are supposed to be neutral with regard to epistemic (non-)specificity, the results for this indefinite type suggests that the continuation setting up speaker knowledge was slightly more natural than that setting up lack of speaker knowledge. The fact that the [-epistemic] continuation nevertheless elicited higher ratings for some and SOME indefinites provides evidence that these indefinite types are in fact epistemically non-specific.

[INSERT FIGURE 6 ABOUT HERE]

For each contrast (the one in (11) and the one in (12)), a mixed ANOVA was conducted on the ratings, with continuation type as the within-subjects variable, and determiner type as the between-subjects variable. The effect of continuation was significant both for indefinites in subject position ($F_1(1,77)=47, p<.001$; $F_2(1,21)=132, p<.001$) and for indefinites in object position ($F_1(1,77)=33, p<.001$; $F_2(1,21)=63, p<.001$). The effect of determiner was also significant both for indefinites in subject position ($F_1(2,77)=11.1, p<.001$; $F_2(2,21)=18, p<.001$) and for indefinites in object position ($F_1(2,77)=8.8, p<.001$; $F_2(2,21)=15, p<.001$). There was also a significant continuation by determiner interaction, both for indefinites in subject position ($F_1(2,77)=27, p<.001$; $F_2(2,21)=76, p<.001$) and for indefinites in object position ($F_1(2,77)=46, p<.001$; $F_2(2,21)=50, p<.001$).

In order to explore the sources of the interactions, each analysis (done separately for subject vs. object position) was followed-up by two one-way ANOVAs comparing the three types of determiners on each type of continuation, as well as three paired-samples t-test comparing the two continuations for each determiner type. In order to avoid inflating the Type I error rate, the alpha level was set at .01 (.05 divided by 5, the number of follow-up comparisons). The results of these follow-up comparisons are reported in Table 4, where the top rows report the comparisons among determiner types, based on the one-way ANOVAs, and the bottom rows report the comparisons between the continuations, based on the paired-samples t-tests.

<table>
<thead>
<tr>
<th>Table 4: summary of statistical analyses for Study 2, epistemic specificity</th>
<th>comparisons among determiner types</th>
</tr>
</thead>
<tbody>
<tr>
<td>subject position, [+epistemic] continuation (11a)</td>
<td>$a&gt;\text{some} \approx \text{SOME}$</td>
</tr>
<tr>
<td>subject position, [-epistemic] continuation (11b)</td>
<td>$\text{some}=\text{SOME} \approx a$</td>
</tr>
<tr>
<td>object position, [+epistemic] continuation (12a)</td>
<td>$a&gt;\text{some} \approx \text{SOME}$</td>
</tr>
</tbody>
</table>
4.4. Results on scopal (non-)specificity

The mean ratings for the contrasts testing scopal (non-)specificity, in (13) and (14), are given in Figure 7. Looking first at the contrast in (13), involving scope relative to an intensional operator, we observe that both *a* and *SOME* indefinites were rated higher with the NSR than the WSR continuation, while no such difference was observed for *some* indefinites. A mixed ANOVA with continuation as the within-subjects variable and determiner type as the between-subjects variable found a significant effect of continuation (F₁(1,77)=21, p<.001; F₂(1,21)=19, p<.001), a significant effect of determiner type (F₁(2,77)=3.1, p<.05; F₂(2,21)=5.3, p<.05), and a significant interaction between the two (F₁(2,77)=9.6, p<.001; F₂(1,21)=8.5, p<.01). This interaction was followed-up in the same way as the interaction on epistemic (non-)specificity reported in the previous section; the results are summarized in Table 5 (see explanation about Table 4).

<table>
<thead>
<tr>
<th>Comparisons among determiner types</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSR continuation (13a)</td>
</tr>
<tr>
<td>NSR continuation (13b)</td>
</tr>
</tbody>
</table>

We turn next to performance on the scope contrast in (14). A mixed ANOVA with continuation as the within-subjects variable and determiner type as the between-subjects variable found a significant effect of continuation (F₁(1,77)=65, p<.001; F₂(1,21)=24, p<.001), but no significant effect of determiner type. There was a significant interaction between continuation and determiner on the by-subjects analysis only (F₁(2,77)=7.6, p<.01; F₂(1,21)=2.7, p=.096). The interaction was followed-up, on the by-subjects analysis only, by the same follow-up tests as in the previous section; the results are reported in Table 6.
Table 6: summary of statistical analyses for Study 2, scopal specificity with respect to universal quantifier

<table>
<thead>
<tr>
<th>comparisons among determiner types</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSR continuation (14a)</td>
</tr>
<tr>
<td>NSR continuation (14b)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>comparisons between continuations</th>
</tr>
</thead>
<tbody>
<tr>
<td>a indefinites</td>
</tr>
<tr>
<td>some indefinites</td>
</tr>
<tr>
<td>SOME indefinites</td>
</tr>
</tbody>
</table>

> significantly greater than
≈> marginally greater than
= no significant difference

4.5. Discussion

As shown in Table 4, the [+epistemic] continuations were allowed for a indefinites more than for some indefinites, but still allowed for some indefinites more than for SOME indefinites. The [-epistemic] continuation was equally acceptable for some and SOME indefinites, compared to a indefinites. This indicates that both some and SOME indefinites are epistemically non-specific, but that stressing SOME makes the indefinite especially incompatible with epistemic specificity.

Turning to the contrasts testing scopal (non-)specificity, performance on the contrast in (14) suggests that all three indefinite types readily allow wide scope (when it corresponds to the surface-scope interpretation, as in (14a)), but that narrow-scope readings are more accessible for a indefinites than for some and SOME indefinites. If some indefinites can be quantificational, just like a indefinites, the differential performance with regard (14b) is impossible to explain. We note, however, that numerically, the NSR in (14b) was less acceptable than the WSR in (14a) even for a indefinites, though this difference did not reach statistical significance. Given that even a indefinites received numerically low ratings for (14b), we do not want to make too much of this contrast, and we leave in-depth investigation of it for further research.

Performance on the contrast in (13) tells a different story: here, both NSRs and WSRs are available for unstressed some indefinites, but the NSR is preferred to the WSR for stressed SOME indefinites – the opposite of what was expected if some and SOME indefinites readily allow WSRs. A possible explanation for this finding is that (13a) makes the indefinite not only scopally specific but also epistemically specific. As shown by performance on (11a) and (12a), SOME indefinites are particularly incompatible with epistemic specificity, which could also be responsible for lowering the ratings of SOME indefinites on (13a). What we are seeing is a conflict between two different properties of some/SOME indefinites: on the one hand, they are epistemically non-specific, with this being particularly pronounced for SOME indefinites (see performance on (11a) and (12a)); on the other hand, they are readily compatible with WSRs (see performance on (14a-b), as well as in Study 1). In the case of (13), these two properties come in conflict: should some/SOME indefinites be accepted in (13a) because it brings out the WSR? Or should they be rejected, because (13a) also brings out the epistemically specific reading? For SOME indefinites, which are especially incompatible with epistemic specificity, the property of epistemic non-specificity wins out, and (13a) receives low ratings; but for some indefinites, which are not quite as incompatible with epistemic non-specificity, scopal specificity wins out, and (13a) receives high ratings. Again, this is only a tentative explanation, and more research into different local scope
configurations is required before we have a full picture of the scope-taking properties of some and SOME indefinites.

5. General discussion

We are now in a position to put together results of both studies. An overall summary of the findings is given in Table 7. What these findings suggest is that some and SOME indefinites have two properties that distinguish them from a indefinites: first, they are more compatible than a indefinites with scopal specificity, in particular with long-distance WSRs (Study 1); and second, they are less compatible than a indefinites with epistemic specificity (Study 2). Comparing between some and SOME indefinites, we see that overall, they exhibit quite similar properties, but that stress on some both facilitates long-distance WSRs (Study 1) and makes the indefinite particularly incompatible with epistemic specificity (Study 2).

Table 7: Comparison across studies

<table>
<thead>
<tr>
<th></th>
<th>scopal (non-)specificity</th>
<th>epistemic (non-)specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>long-distance contexts</td>
<td>local contexts</td>
</tr>
<tr>
<td>(Study 1)</td>
<td></td>
<td>(Study 2, (13)-(14))</td>
</tr>
<tr>
<td>a indefinites</td>
<td>NSRs fully available,</td>
<td>both WSRs and NSRs available,</td>
</tr>
<tr>
<td></td>
<td>WSRs largely</td>
<td>with a slight preference for</td>
</tr>
<tr>
<td></td>
<td>unavailable</td>
<td>the surface-scope reading</td>
</tr>
<tr>
<td>some indefinites</td>
<td>NSRs fully available,</td>
<td>both WSRs and NSRs available,</td>
</tr>
<tr>
<td></td>
<td>WSRs more</td>
<td>except when the NSR</td>
</tr>
<tr>
<td></td>
<td>available than in the</td>
<td>corresponds to an</td>
</tr>
<tr>
<td></td>
<td>case of a indefinites</td>
<td>inverse-scope reading</td>
</tr>
<tr>
<td>SOME indefinites</td>
<td>NSRs fully available,</td>
<td>both WSRs and NSRs available,</td>
</tr>
<tr>
<td></td>
<td>WSRs more</td>
<td>except when the NSR</td>
</tr>
<tr>
<td></td>
<td>available than in the</td>
<td>corresponds to an</td>
</tr>
<tr>
<td></td>
<td>case of both a and some</td>
<td>inverse-scope reading;</td>
</tr>
<tr>
<td></td>
<td>indefinites</td>
<td>WSR relatively unavailable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if it also involves epistemic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>specificity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>more compatible with</td>
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<td></td>
<td></td>
<td>epistemically non-specific</td>
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<td></td>
<td></td>
<td>than with specific contexts</td>
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<td></td>
<td></td>
<td>epistemically non-specific</td>
</tr>
<tr>
<td></td>
<td></td>
<td>than with specific contexts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the contrast is even stronger than for some indefinites</td>
</tr>
</tbody>
</table>

We now consider what theory of indefinites can best account for the fact that long-distance scope and epistemic non-specificity for some indefinites go hand-in-hand, with stress on some bringing out both. Clearly, long-distance scope does not have to be related to epistemic non-specificity. For example, a certain indefinites are the opposite of some indefinites, requiring epistemic specificity (Farkas 2002b), yet, like some indefinites, they readily allow long-distance scope readings (see the experimental findings in Ionin 2010). It is noteworthy that both epistemically specific indefinites (those with a certain) and epistemically non-specific ones (those with some) allow long-distance scope more readily than do a indefinites, which are neutral with respect to epistemic (non-)specificity. There are at least two possible directions to follow in explaining this fact.

One possibility is that the relationship between epistemic (non-)specificity and long-distance scope is completely accidental. The core meaning of some indefinites is that of epistemic non-specificity, and these indefinites have the same range of scope readings available to them as a indefinites (see Farkas 2002b for an implementation of precisely this type of analysis within the DRT framework). The reason that long-distance scope is more readily allowed for some than for a indefinites is the Gricean competition discussed in section
3.3: since the preferred interpretation for a indefinites is that of local scope, use of a determiner other than a (regardless of how it behaves with respect to epistemic (non-)specificity) signals the possibility of a long-distance scope reading. Support for this view comes from the experimental findings of Authors (2011) that one indefinites (which are neutral with respect to epistemic (non-)specificity) are more readily compatible with long-distance scope than a indefinites – i.e., they behave much like some indefinites in terms of scope. At the same time, the view that any relationship between epistemic non-specificity and long-distance scope is purely accidental cannot readily explain why stress on some facilitates both (in contrast, Authors 2011 found that for one indefinites, stress on one makes no difference to availability of long-distance scope).

An alternative possibility is that some indefinites are potentially ambiguous between indefinites which are fairly neutral with respect to any kind of specificity (i.e., they behave much like a indefinites) vs. indefinites that are scopally specific and at the same time, epistemically non-specific. Stress on SOME disambiguates in favor of the latter interpretation. In the case of epistemically specific indefinites, such as a certain, the link between epistemic specificity and long-distance scope has previously been made: for instance, both Fodor and Sag (1982) and Kratzer (1998) treat a certain indefinites as denoting entities that the speaker has in mind, which ensures both epistemic specificity and non-narrow scope (in the case of intermediate-scope readings, Kratzer 1998 analyzes a certain indefinites in terms of contextually determined skolemized choice functions). In the case of some indefinites, how to implement the link between epistemic non-specificity and long-distance scope is not immediately clear. In general, proposals that focus on epistemic non-specificity of indefinites (e.g., Groenendijk and Stokhof 1980) are not concerned with their scopal behavior, whereas most analyses of long-distance scope are not concerned with epistemic (non-)specificity. For instance, the behavior of SOME in terms of long-distance scope is quite compatible with Endriss’s (2009) proposal that long-distance scope is driven by topicality, and that topicality is indicated by stress on the determiner; however, this analysis has nothing to say about epistemic (non-)specificity.

For the time being, we leave open the question of how to best analyze the scopal and epistemic properties of some indefinites, but we note that any successful analysis has to ultimately account for both.

6. Conclusion and directions for further research

The studies reported in this paper provide novel evidence about the behavior of a, some and SOME indefinites in environments of both scopal and epistemic (non-)specificity. The central empirical finding of this paper is that stress on some both facilitates long-distance scope and brings out the epistemically non-specific reading of the indefinite. This finding was not expected based on prior literature, which, if anything, has previously tied epistemic non-specificity to lack of stress on some (e.g., Farkas 2002b). While the present findings cannot, in themselves, provide support for one theoretical analysis of some indefinites over another, they suggest that a successful analysis of some indefinites needs to tie together long-distance scope, epistemic non-specificity, and stress pattern.

As discussed in the previous section, a number of questions remain open to further research. First, the studies reported here tested only a small subset of possible scope configurations, and the findings with regard to local scope (in Study 2) were somewhat inconclusive. In particular, it is not clear why quite different results were obtained in intensional environments vs. in double-quantifier sentences: was this a function of the scope operator (intensional operator vs. universal quantifier), the position of the indefinite (subject vs. object), and/or the nature of the surface-scope reading (whether it corresponded to the
WSR or the NSR of the indefinite)? In order to tease apart these possibilities, it is necessary to test a fuller range of scopal configurations. Adding contexts where *some* interacts with a negative operator would also be fruitful, and would address the question of whether stress on *some* is related to its behavior as a Positive Polarity Item (cf. Giannakidou 2011).

Additionally, it is important to test a variety of other indefinite determiners (both epistemically specific ones, such as *a certain*, and epistemically neutral ones, such as numerals) using the same experimental materials, in order to obtain a fuller picture of how (if at all) epistemic (non-)specificity is related to scopal (non-)specificity. It would also be fruitful to test the same contexts using different experimental methodologies: while the present study used TVJT format for long-distance scope but AJT format for local scope, studying both types of scope configurations using the same type of format would allow for a more direct comparison. Finally, it would be interesting to extend the investigation to epistemically (non-)specific indefinites in other languages. For instance, Russian distinguishes between three types of indefinite *some* determiners: *koe*+wh determiners, which are often analyzed as both epistemically and scopally specific; *wh*+to determiners, which are argued to be epistemically non-specific but scopally specific; and *wh*+nibud’ determiners, which are scopally non-specific (see, e.g., Haspelmath 1997, Yanovich 2005, Kagan 2006, Geist 2008, Eremina 2009). An interesting question is whether indefinite determiners in different languages would map onto one another, for instance, whether (stressed and/or unstressed) *some* indefinites might pattern like Russian *wh*+to indefinites.

Ultimately, many questions remain open for further investigation; it is hoped that the present studies provide a first step towards an experimental investigation of the relationship between scopal and epistemic (non-)specificity.

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Figure 1. Study 1, sample picture for WSR scenario
Figure 2. Study 1, sample picture for NSR scenario
Figure 3. Study 1, sample picture for contrastive-WSR scenario
Figure 4. Study 1, sample picture for contrastive-NSR scenario
Figure 5. Results of Study 1: mean proportion of ‘true’ responses, by category
Figure 6. Results of Study 2: mean ratings for categories testing epistemic (non-) specificity

![Bar chart showing mean ratings for categories testing epistemic (non-) specificity](chart.png)

Error bars: +/- 1 SD
Figure 7. Results of Study 2: mean ratings for categories testing scopal (non-)specificity