snippets

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Contents

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Note: Submissions to this issue were reviewed anonymously by contributors to the issue. The guest editors would like to thank them for their help, as well as Sam Alxatib, Cory Bill, Winfried Lechner, Guillermo del Pinal, Jack Tomlinson, and Kazuko Yatsushiro.

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Editorial Statement

1. Purpose

The aim of *Snippets* is to publish specific remarks that motivate research or that make theoretical points germane to current work. The ideal contribution is brief, self-contained and explicit. One encounters short comments of this kind in earlier literature in linguistics. We feel that there no longer is a forum for them. We want *Snippets* to help fill that gap.

2. Content

We will publish notes that contribute to the study of syntax and semantics in generative grammar. The notes are to be brief, self-contained and explicit. They may do any of the following things:

- point out an empirical phenomenon that challenges accepted generalizations or influential theoretical proposals;
- point out unnoticed minimal pairs that fall outside the scope of any existing theory;
- point out an empirical phenomenon that confirms the predictions of a theory in an area where the theory has not been tested;
- explicitly describe technical inconsistencies in a theory or in a set of frequently adopted assumptions;
- explicitly describe unnoticed assumptions that underlie a theory or assumptions that a theory needs to be supplemented with in order to make desired predictions;
- call attention to little-known or forgotten literature in which issues of immediate relevance are discussed.

We also encourage submissions that connect psycholinguistic data to theoretical issues. A proposal for a pilot experiment in language acquisition or language processing could make for an excellent snippet.

The earliest *Linguistic Inquiry* squibs exemplify the kind of remark we would like to publish. Some of them posed unobserved puzzles. For instance, a squib by Postal and Ross in *Linguistic Inquiry* 1:1 ("A Problem of Adverb Preposing") noted that whether or not we can construe a sentence-initial temporal adverb with an embedded verb depends on the tense of the matrix verb. A squib by Perlmutter and Ross in *LI* 1:3 ("Relative Clauses with Split Antecedents"), challenging the prevailing analyses of coordination and extraposition, noted that conjoined clauses, neither of which contains a plural noun phrase, can appear next to an "extraposed" relative that can only describe groups. Other squibs drew attention to particular theoretical assumptions. For instance, a squib by Bresnan in *LI* 1:2 ("A Grammatical Fiction") outlined an alternative account of the derivation of sentences containing *believe* and *force*, and asked whether there were principled reasons for dismissing any of the underlying assumptions (among them that semantic interpretation is sensitive to details of a syntactic derivation). A squib by Zwicky in *LI* 1:2 ("Class Complements in Phonology") asked to what extent phonological rules refer to complements of classes. None of these squibs was more than a couple of paragraphs; all of them limited themselves to a precise question or observation.

3. Submission details

Snippets is an electronic journal. We will solicit submissions twice a year. The submissions that we accept will be posted on the journal website approximately 3 months after each deadline, and all accepted submissions will remain permanently on the website. *Snippets* is intended as a service to the linguistics community. Consequently, authors are advised that, when they submit to *Snippets*, we understand them as allowing their submission to be reproduced if published. At the same time, the rights for the published snippets themselves will remain with the authors. As a result, citation of *Snippets* material will have to indicate the author's name and the specific source of the material.

We will accept electronic submissions at the address snippetsjournal@gmail.com. Electronic submissions may take the form of (a) the text of an e-mail message, or (b) an attached file. The attached file should be a simple text file, a Word file (Mac or Windows), a Rich Text Format (RTF) file, or a PDF. The files must be anonymous, but must be accompanied with information about the authors: name, affiliation, and (postal or electronic) address. Submissions can be of any length below 500 words (including examples), with an additional half page allowed for diagrams, tables, and references. The submissions may not contain footnotes or general acknowledgments, except acknowledgements of funding sources, which must be credited in a line following the references. Authors who wish to acknowledge language consultants are allowed but not required to do so. We will not consider abstracts.

4. Editorial policy

Submissions will be reviewed by our editorial board and review board, and review will be name-blind both ways. While we guarantee a response within 3 months of the submission deadline, we will not necessarily provide more than a yes/no response to the submitter. We allow resubmission (once) of the same piece.

This statement reproduces with minor modifications the editorial statement in Issue 1 of Snippets (January 2000), edited by Carlo Cecchetto, Caterina Donati and Orin Percus.

Introduction to the special issue

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A few months before Uli Sauerland's 50th birthday, we saw a perfect opportunity to put him in the spotlight by presenting him with a collection of snippets as a birthday gift. We asked his classmates, colleagues, collaborators, and cohabitants — past and present — to contribute a Sauerlandian snippet, engaging with some aspect of his work. Uli's scholarly versatility made this task almost too easy. The deadlines we imposed were tight, but our contributors stepped up to the plate, and delivered even more than we could have hoped for. The resulting festschrift was a collection of notes and remarks whose incredible breadth reflected just how wide-ranging Uli's influence on the field has been. This special issue of *Snippets* contains edited versions of the festschrift contributions.

We'd like to offer our deep gratitude to the editors of Snippets, Sam Alxatib and Isaac Gould, who patiently guided us through the editing process, and offered incredibly detailed editorial feedback on select submissions. We're also indebted to Sam Alxatib, Cory Bill, Winfried Lechner, Guillermo del Pinal, Jack Tomlinson, and Kazuko Yatsushiro for their help with reviewing, as well as to the contributors themselves.

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ASL IX to locus as a modifier

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In ASL, a pointing gesture with an index finger (IX) can be used to refer to entities. When the referent is not physically present in the context, it can be associated with different locations in the signing space (locus) so that IX to that locus refers to that referent. It has been argued that loci are overt instantiations of indices (Lillo-Martin and Klima 1990) that the pronominal element IX carries. I propose an alternative analysis of IX to a locus (IX_{LOC}), where it is analyzed as a relative clause modifier, taking a locational variable *a*.

(1) a. $[\![IX_{LOC}]\!] = \lambda a.\ \lambda x.$ x is signed at a
b. $[\![IX_{A}]\!] = \lambda x.$ x is signed at A

There are at least two motivations for this analysis. First, loci are neither obligatory nor licensed in all anaphoric contexts. ASL freely allows null arguments and bare nouns for anaphoric reference when there is a single salient entity in the discourse (Ahn, Kocab, and Davidson 2019). Also used in this context is a neutral IX, which points not to a previously established locus but to a neutral position. In contrary, IX to locus is not frequent in naturally produced data (Czubek 2017; Frederiksen and Mayberry 2016), and is licensed when contrast has to be drawn between referents (Ahn, Kocab, and Davidson 2019) as in (2). This suggests that the primary role of IX_{LOC} might be in distinguishing the intended referent from a set of other competing referents, rather than in anaphorically referring to that referent.

(2) BOY IX_A SEE GIRL IX_B READ. IX_A DANCE.
'A boy saw a girl read. He danced.'

Second, IX to locus is only licensed when the locus has been associated with the referent in previous discourse, a use that I call the introductory use. The introductory use is illustrated by the first instance of IX_A in (3), where the referent is associated with locus A.

(3) JIN *(IX_A) ENTER CLUB. IX_A DANCE.
'Jin entered a club. He danced.'

Note that without the first instance of IX_A in (3), it is infelicitous to use IX_A to refer to Jin in the second sentence. Thus, it is not possible to analyze both instances of IX_A as anaphoric elements. If IX to locus is analyzed as a pronoun carrying an index, the introductory use of IX_{LOC} would need a separate account from the anaphoric one.

If IX_{LOC} is analyzed as a modifier, the difference between the introductory use and the anaphoric use can be derived straightforwardly without proposing two separate denotations. In the introductory use, the referential expression *Jin* combines with a relative clause "that is signed at a" in an appositive manner, so that the resulting interpretation is Jin with the added information that Jin is the one signed at a. In the anaphoric use, I propose that a null anaphor, which is readily available in

the language, is the head noun of the same relative clause "that is signed at a", and that the relative clause is restrictive, as in (4b). Relative clauses with null heads are also found in spoken languages like Mandarin, as in (5).

(4) a. $[\![\text{JIN IX}_\text{A}]\!]$ = [*jin* [who is signed at A]] 'Jin'
b. $[\![\text{IX}_\text{A}]\!] = [\![\varnothing\ \text{IX}_\text{A}]\!] = \iota x.$ x is signed at A 'the one signed at A'

(5) Wo mai-de hen gui.
I buy-RC HEN expensive
'The thing I bought was expensive.'

The details of deriving the appositive meaning in (4a) have to be worked out further, as appositive relative clauses are standardly assumed to differ from restrictive ones in structure and meaning (cf. Del Gobbo 2007). But the basic analysis of IX_LOC as a modifier can remain consistent between introductory and anaphoric uses even if this difference is taken into account.

Thus, analyzing IX_LOC as a relative clause modifier allows us to unify the introductory and the anaphoric use and better account for the contrastive distribution.

References

Ahn, Dorothy, Annemarie Kocab, and Kathryn Davidson. 2019. Closer look at ASL IX: Locus as contrast-triggering modifier. Ms. Harvard University.

Czubek, Todd Alan. 2017. A Comprehensive Study of Referring Expressions in ASL. Doctoral Dissertation, Boston University.

Del Gobbo, Francesca. 2007. On the syntax and semantics of appositive relative clauses. In *Parentheticals*, ed. Nicole Dehé and Yordanka Kavalova, 173–201. Amsterdam: John Benjamins.

Frederiksen, Anne Therese, and Rachel I. Mayberry. 2016. Who's on first?: Investigating the referential hierarchy in simple native ASL narratives. *Lingua* 180:49–68.

Lillo-Martin, Diane, and Edward S. Klima. 1990. Pointing out differences: ASL pronouns in syntactic theory. *Theoretical Issues in Sign Language Research* 1:191–210.

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Decomposing scalar approximatives in Greek

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Greek has several *less precise scalar approximator* constructions (see Sauerland and Stateva 2007 for the term). Focusing on (1) and (2), I argue that the meaning of these constructions is built in the syntax. (1) and (2) are found in informal registers and involve determiners otherwise used as negative polarity items (Stavrou and Terzi 2008; Giannakidou 2012) (*kan*-Ds). *Kan*-Ds are not licensed by negation in these contexts (3). In (1), *ka-mia* combines with singular feminine nouns derived from numerals ending in *-aria/-osti* that are followed by NP_{Plural}. In (2), singular *kan*-Ds combine with expressions of time or amount with which they agree in gender, yielding the interpretation of 'around one'. *Kan* is not obligatory in (1).

(1) Agorasa ka-mia ikos-aria/ ekato-sti vivlia
bought.1SG KAN-one.FEM twenty-FEM/ hundred-FEM books
'I bought approximately 20/100 books.'

(2) Thelo kan-ena mina/ ka-mia ora/ kan-ena kilo mila
want.1SG KAN-one.MASC month.MASC/ KAN-one.FEM hour.FEM/ KAN-one.NEUT kilo.NEUT apples
'I need about a month/about an hour/about one kilo of apples.'

(3) * (Den) ida ka-mia gineka
(neg) saw.1SG KAN-one.FEM woman
'I didn't see any woman.'

Stavrou and Terzi (2008) analyze the numerical nouns in (1) as classifiers. I propose instead that such nouns are derived syntactically, as in (4).

(4) $[_{Quantity1P}$ ka-mia $[_{Q}]$ $[_{Div1P}$ $[_{nP1}$ aria] $[_{Quantity2P}$ eikos- $[_{Div2P}$ Number $[_{nP2}$ vivli-a]]]]]

-aria/-osti realize a fixed gender/number n_1 (Kramer 2015), which has quantity semantics, following Kayne (2010). n_1 takes a $Quantity_2P$ as its complement. Numerals in $Quantity_2$ (Borer 2005) incorporate into *-aria/-osti*. Numerals obligatorily trigger plural on Greek nouns, hence 'books' bears plural (number in Div appearing on n due to Div-n fusion in Greek).

I furthermore propose that *kan*-Ds are complex: they contain *ka(n)*, which combines with forms of the numeral 'one', cf. Martí (2015) on Spanish *alg-un*. According to Barouni (2018), *ka(n)* on its own is a minimizer and marks its associate as the endpoint of a scale. Numeral 'one' is in $Quantity_1P$, (Borer 2005), agreeing in gender with n_1, and *ka(n)* is a Q modifier attaching to the numeral. In (1), the scale is determined by the approximate interpretation of round numerals (Krifka 2007). Note that no D head is contained in the lower extended projection, hence the numerical noun does not have independent reference.

Support for this analysis comes from the observation that the numerical noun can be modified by adjectives (5), and that only nouns that can independently co-occur with numerals are licit (6).

(5) Diavasa ka-mia dekaria kenuria vivlia
read.1SG KAN-one ten new books
'I read approximately ten new books.'

(6) a. * deka arheresies
ten caucus.PL
'ten caucuses'

b. * ka-mia dekaria arheresies
KAN-one ten caucus.PL
'about ten caucuses'

As Stavrou and Terzi (2008) note, in (1) the verb may agree with either the numerical noun as singular or the n_2 as plural (7). Nevertheless, the *kan*-D always agrees with the numerical noun and not n_2, and the numerical noun surfaces with nominal/accusative case, depending on its grammatical function. This suggests that *Agree* can either see the highest Q or bypass it and see the head closest to T (cf. Klockmann 2017).

(7) Mia dekaria atoma espefsan/espefse
one ten persons came.3PL/came.1SG
'About ten people came.'

I propose a version of (4) is proposed for (2). *Ka*(*n*) is required here as Greek 'one' hasn't yet fully grammaticalized to an approximative marker (cf. Plank 2002 on Bavarian). Temporal/amount nouns, having fixed gender/number, also realize a fused n_1/Div_1; amount Ns may take a Div_2P as their complement; 'one' in $Quantity_1$ determines the endpoint of the scale.

References

Barouni, Maria. 2018. Topics in the syntax and semantics of greek particles. Doctoral Dissertation, University of Crete.

Borer, Hagit. 2005. *In Name Only*. Oxford: Oxford University Press.

Giannakidou, Anastasia. 2012. The landscape of Greek quantifiers. In *Handbook of Quantifiers in Natural Language*, ed. Edward Keenan and Denis Paperno, 285–346. Springer Netherlands.

Kayne, Richard S. 2010. *Comparisons and Contrasts*. Oxford: Oxford University Press.

Klockmann, Heidi. 2017. The Design of Semi-lexicality: Evidence from Case and Agreement in the Nominal Domain. Doctoral Dissertation, University of Utrecht.

Kramer, Ruth. 2015. *The Morphosyntax of Gender*. Oxford: Oxford University Press.

Krifka, Manfred. 2007. Approximative interpretation of number words: A case for strategic communication. In *Cognitive Foundations of Communication*, ed. Irene Krämer Gerlof Bouma and Joost Zwarts, 111–126. Amsterdam: Koninklijke Nederlandse Akademie van Wetenschapen.

Martí, Luisa. 2015. The morphosemantics of Spanish indefinites. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 576–594.

Plank, Frans. 2002. Oneness > indefiniteness > impreciseness in numbers and clock time > reciprocal disorder — in Bavarian, where else. Ms. University of Konstanz.
Sauerland, Uli, and Penka Stateva. 2007. Scalar vs. epistemic vagueness: Evidence from approximators. In *Proceedings of the 17th Semantics and Linguistic Theory Conference (SALT 17)*, ed. Tova Friedman and Masayuki Gibson, 228–245.
Stavrou, Melita, and Arhonto Terzi. 2008. Types of numerical nouns. In *Proceedings of the 26th West Coast Conference on Formal Linguistics (WCCFL 26)*, ed. Charles B. Chang and Hannah J. Haynie, 429–437. Somerville, MA: Cascadilla Press.

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A problem for Fox's (2007) account of free choice disjunction

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Sentence (1) conveys not just (2a) but also the free choice inferences (2b) and (2c), and sometimes also the negation of (2d).

(1) You may take an apple or a pear.

(2) a. There is at least one fruit (apple or pear) that you may take. $\diamond(A \vee B)$
b. You may take an apple. $\diamond A$
c. You may take a pear. $\diamond B$
d. You may take both an apple and a pear. $\diamond(A \wedge B)$

Sauerland's (2004) influential treatment of implicatures inspired Fox's (2007) account of free choice. Fox assumes a set of relevant propositions Q_C. Hearers infer speakers are ignorant about anything in Q_C their utterance does not settle. Fox defines an operator *Exh(austification)*, which strengthens utterances. Thus, suppose $Q_C = \{$(2a), (2b), (2c), (2d)$\}$. Unexhaustified, (1) only settles (2a); but parsed as (3), it also settles (2b)-(2d).

(3) $Exh\,[Exh\,(\diamond\,(A \vee B))] = \diamond A \wedge \diamond B \wedge \neg \diamond\,(A \wedge B)$

Why is (1) parsed as (3)? For Fox, *Exh* prevents implausible ignorance inferences. However, by that logic, many other parses of (1) should be equally available: e.g. (4a) settles (2a) and (2d), and (4b) settles (2a). Our paraphrases fold in the relevant ignorance inferences.

(4) a. $Exh\,(\diamond\,(A \vee B)) = \diamond\,(A \vee B) \wedge \neg \diamond\,(A \wedge B)$
"You may take an apple or a pear (I don't know which), but not both."
b. $\diamond Exh\,(A \vee B) = \diamond\,((A \vee B) \wedge \neg\,(A \wedge B))$
"You may take an apple or a pear (I don't know which) without the other."

Unlike (3), these parses do not entail (2b) or (2c). Free choice is thus derived only to the extent that hearers rule out such parses, and Fox's account is arguably not complete without an explanation of why they often do.

One might think hearers select (3) because it is the parse that settles the highest number of propositions in Q_C. But empirically, not all utterances of (1) settle (2d) (Simons 2005). Sometimes (1) communicates that hearers may take either fruit by itself, but does not settle (2d). We refer to this as the Simons reading. To explain this, Fox assumes another parse is also available for (1):

(5) $Exh\,[Exh\,(\diamond\,(Exh\,(A) \vee Exh\,(B)))] = \diamond\,(A \wedge \neg B) \wedge \diamond\,(B \wedge \neg A)$
"You may take either fruit by itself (leaving open whether you may take both)."

The remaining problem is how to explain why the preferred interpretations of (1) tend to be (3) and (5) rather than other LFs such as (4a) or (4b). Fox himself (n. 37) proposes conditions under which hearers insert *Exh*: (i) if the sentence has an undesirable Ignorance Inference; and (ii) only if the resulting sentence generates fewer Ignorance Inferences.

We think (i) and (ii) block (5) but are compatible with (4a) and (4b). For (5), the lowest two *Exh*s are not individually licensed by (ii). For (4a), take $Q_C = \{$(2a), (2d)$\}$. The *Exh* that is present is licensed because it settles (2d), and an additional *Exh* would not be licensed because (2a) is already settled. For (4b), suppose it is relevant whether one may take some fruit without taking the other. The proposition denoted by (4b) itself is then in Q_C. Suppose $Q_C = \{$(2a), (4b)$\}$. Evidently, (4b) settles (4b), so its *Exh* is licensed. Other constraints on *Exh* have been proposed (e.g. Chierchia et al. 2011; Fox and Spector 2018), but they are still compatible with (4a) and (4b). Therefore, Fox (2007) still requires a constraint that disfavors these LFs.

Could something be wrong with our Q_C? Bar-Lev and Fox (2017) suggest that any Q_C for (1) contains at least (2b) and (2c). With these additions, (i) by itself now licenses infinite insertions of *Exh* as in $\diamond Exh(A \vee B), \diamond Exh(Exh(A \vee B)), \diamond Exh(Exh(Exh(A \vee B)))$, and so on, none of which settles (2b) or (2c); (ii) prevents such garden paths but, as mentioned, still blocks (5). Could one do without (5) and account for the Simons reading in another way? Bar-Lev and Fox (2017) do not rely on (5) being a possible parse; for them, (1) receives the Simons reading whenever (2d) is not relevant (their n. 3). However, what they derive in that case is not $\diamond(A \wedge \neg B) \wedge \diamond(B \wedge \neg A)$, but $\diamond A \wedge \diamond B$; this fails to entail that one may take either fruit without the other.

Bar-Lev and Fox (2017) also redefine *Exh*. This gives (4a) the semantics of (3); the semantics of (3), (4b), and (5) do not change. Crucially, (4b) still lacks the free choice inferences (2b) and (2c). Thus, even Bar-Lev and Fox (2017) require constraints on *Exh* or ways to choose among LFs.

References

Bar-Lev, Moshe E. and Danny Fox. 2017. Universal free choice and innocent inclusion. In *Proceedings of the 27th Semantics and Linguistic Theory Conference (SALT 27)*, ed. Dan Burgdorf, Jacob Collard, Sireemas Maspong, and Brynhildur Stefánsdóttir, 95–115. Ithaca, NY: LSA and CLC Publications.

Chierchia, Gennaro, Danny Fox, and Benjamin Spector. 2011. Scalar implicature as a grammatical phenomenon. In *Semantics: An international handbook of natural language meaning*, ed. Klaus von Heusinger, Claudia Maienborn, and Paul Portner, 2297–2331. Berlin: de Gruyter Mouton.

Fox, Danny. 2007. Free choice and the theory of scalar implicatures. In *Presupposition and Implicature in Compositional Semantics*, ed. Uli Sauerland and Penka Stateva, 71–120. London: Palgrave Macmillan.

Fox, Danny, and Benjamin Spector. 2018. Economy and embedded exhaustification. *Natural Language Semantics* 26:1–50.

Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:367–391.

Simons, Mandy. 2005. Dividing things up: The semantics of *or* and the modal/*or* interaction. *Natural Language Semantics* 13:271–316.

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Quantifier *irgendein* and local implicatures

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This snippet focuses on a puzzle concerning the alternatives associated with the German existential quantifiers *einige* ('some') and *irgendeine* ('any') under embedding. In particular, we show that the two quantifiers trigger different implicatures in upward-entailing (UE) and downward-entailing (DE) contexts; see (1) and (2) respectively. In short, *einige* and *irgendeine* trigger the same *not all* implicature when embedded under 'every' (UE), but behave differently from each other when embedded under 'none' (DE). Whereas *einige* triggers a local implicature in DE contexts, *irgendeine* is interpreted as 'none'.

(1) Jedes der Mädchen fand *einige/irgendeine* ihrer Murmeln.
every of.the girls found *some/any* of.her marbles
'Each of the girls found some of her marbles.'
$\rightsquigarrow$ Each of the girls found *some but not all* of her marbles.

(2) Keines der Mädchen fand *einige/irgendeine* ihrer Murmeln.
none of.the girls found *some/any* of.her marbles
'None of the girls found some/any of her marbles.'
$\overset{?}{\rightsquigarrow}$ None of the girls found *some but not all* of her marbles.

In *grammatical* accounts (Fox 2007; Chierchia 2013), an embedded occurrence of a scalar element may trigger local calculation of alternatives and their negation. If *einige*/*irgendeine* trigger a local implicature, then the readings in (1) and (2) result. What counts as an alternative to these kinds of sentences is a central issue for all such theories that have emerged from the neo–Gricean account of implicatures (Horn 1989; Sauerland 2004).

Gotzner and Benz (2018) have developed an experimental paradigm in which participants systematically derived the embedded implicature in the case of *einige* 'some' being embedded under *alle* 'all'. In an interactive version of this paradigm (Benz et al. 2018), we collected a large corpus of production and interpretation data on German sentences of the form 'Q of the girls found Q' of their marbles'. Q and Q' could be, among others, *einige* 'some', *alle*/*jedes* 'all'/'every', *keines* 'none', and *irgendeine* 'any' (for details see https://osf.io/qs2vj/).

In (3) percentages of responses indicating a local *some but not all* reading for interpretation (%int) and production (%prod) are shown. As can be seen, when *einige* and *irgendeine* are embedded under *alle* (A-E and A-I respectively), the interpretation that each girl found some but not all marbles arises consistently for both quantifiers. In the case of embedding under *keine* 'no', however, interpretations diverge: *einige* embedded under *keine* (N-E) is predominantly interpreted as 'some but not all', whereas *irgendeine* embedded under *keine* (N-I) never gives rise to a local implicature. Instead, the sentence with *irgendeine* is interpreted as 'no girl found anything'.

(3)

	N-E	N-I	A-E	A-I
#int/#prod	35/15	98/77	76/50	4/7
%int	77	1	91	100
%prod	100	0	96	100

#int: abs. number of interpreted utterance tokens.
#prod: abs. number of produced utterance tokens,

The data give rise to the following puzzle about alternatives: if one assumes with Buccola and Haida (2017) that 'all' is an alternative to *irgendeine*, then this explains why A-E and A-I trigger the same local implicature, but it leaves unexplained why N-E and N-I behave differently. If, alternatively, one assumes that *irgendeine* does not activate the 'all' alternative, then the observations about N-E and N-I follow, but the embedded implicature of A-I remains unexplained. One may argue that the *not all* implicature of A-I is the result of *irgendeine* being singular. Note, however, that participants only saw pictures in which girls had either none or at least 2 out of 4 marbles. Hence, the *all found one* interpretation for A-I was contextually blocked.

Another suggestion is that the *not all* inference from *einige* has become conventionalized, whereas the *not all* inference from *irgendeine* is a true implicature that is blocked in DE contexts. Contrary to this assumption, Benz et al. (2018) show cases in which *einige* in UE contexts fails to produce the expected implicature. Solving the puzzle of alternatives associated with German *irgendeine* may also require further investigation of its distribution and NPI behaviour, which seems to differ from that of English *any*.

References

Benz, Anton, Nicole Gotzner, and Lisa Raithel. 2018. Embedded implicature in a new interactive paradigm. In *Proceedings of Sinn und Bedeutung 22*, ed. Uli Sauerland and Stephanie Solt, 205–222. Berlin: Leibniz-Centre General Linguistics (ZAS).

Buccola, Brian, and Andreas Haida. 2017. Expressing agent indifference in German. In *Proceedings of the 21st Amsterdam Colloquium*, ed. Alexandre Cremers, Thom van Gessel, and Floris Roelofsen, 165–174. Amsterdam: ILLC.

Chierchia, Gennaro. 2013. *Logic in Grammar: Polarity, free choice, and intervention*. Oxford: Oxford University Press.

Fox, Danny. 2007. Free choice and the theory of scalar implicatures. In *Presupposition and Implicature in Compositional Semantics*, ed. Uli Sauerland and Penka Stateva, 71–120. Basingstoke: Palgrave Mcmillan.

Gotzner, Nicole, and Anton Benz. 2018. The best response paradigm: A new approach to test implicatures of complex sentences. *Frontiers in Communication* 2:21. 1–13.

Horn, Laurence R. 1989. *A Natural History of Negation*. Chicago: University of Chicago Press.

Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:367–391.

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Fake indexicals, binding, and the PCC

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The Person Case Constraint (see Anagnostopoulou 2017) regulates combinations of clitics (or agreement) in many languages. While there is variation, the core case excludes an indexical (first or second person) accusative clitic in combination with a third person dative clitic, as in Italian (1a). A first person dative with a third person accusative is fine (1b).

(1) a. * Mi gli presenteranno.
1SG.ACC 3SG.DAT introduce.FUT.3PL.
'They will introduce me to him.'

b. Me lo presenteranno.
1SG.DAT 3SG.ACC introduce.FUT.3PL.
'They will introduce him to me.'

Morphological first and second person elements are not always interpreted as indexicals, as in *Only I did my homework*, where under the "fake indexical" reading, the first person pronoun *my* is interpreted as a bound variable: I am the only *x*, such that *x* did *x*'s homework (i.e., no one else did their homework) (Partee 1989; Heim 2008). To the limited extent we have investigated this, morphological first person accusatives are excluded in PCC contexts even where they are interpreted as bound variables and not as true indexicals, as in Italian (2). (There is some variation in the strength of the effect, but speakers agree that (1a) and (2) pattern together as a function of the person and case of the clitics. One speaker finds amelioration of both (1a) and (2) in some contexts.)

(2) * [(Solo io) mi gli sono presentato.]
(only 1SG.NOM) 1SG.ACC 3SG.DAT AUX introduced
'(Only) I introduced myself (lit: me) to him.'

Preliminary inquiries suggest the same holds in Greek, as in (3):

(3) * Monon ego nomizo oti tu me edikses.
Only I think.1SG that 3SG.DAT 1SG.ACC showed.2SG
Intended: 'Only I think that you showed me to him.'
(i.e., no one else thinks that you showed them to him)

The theoretical landscape of binding, the PCC, and fake indexicals is too varied to consider all combinatorial options here and we can only note some (im)possibilites. If cases like (2) and (3) are to be excluded by the PCC (see below for a different direction), fake indexical clitics must bear person features in the representation where the PCC is evaluated. Semantic approaches which manipulate, ignore or reinterpret the syntactically represented person features in some way

(e.g., von Stechow 2003; see Sudo 2012, Chapter 9 for an overview) are generally consistent with these facts. For example, under Sauerland's (2013) approach, fake indexicals bear person features in the syntax, but their person features (treated as presuppositions) are not carried over to the focus representation ("tier") and thus are interpreted as variables for alternatives. On the other hand, approaches where fake indexicals are featureless bound variables in syntax that acquire their person values through agreement or feature transfer (such as Kratzer 2009) must ensure that the PCC applies after such agreement (whether in the syntax or morphology).

Alternatively, (2) could be excluded by the Clitic Binding Restriction (CBR) (Bhatt and Šimík 2009), which prohibits a bound DO in a cluster with an IO regardless of the DO's person features. This generalization appears to hold in Italian, excluding clusters with reflexive clitics (of the form 'he$_i$ introduced self$_i$ to.her') as well as sentences with two third person clitics when the accusative is bound by a higher subject. The CBR would exclude (2), even if the PCC does not. Greek however might not be subject to the CBR, as suggested by the acceptability of (4). If we are interpreting this data point correctly, then the kind of data considered here could restrict choices among combinations of approaches to the PCC and the syntactic representation of reflexives and fake indexicals.

(4) I Maria$_i$ nomizi oti tu tin$_{i/j}$ ediksa.
the Maria think.3SG that 3DAT.MASC 3SG.ACC.FEM showed.1SG
Possible reading: 'Maria$_i$ thinks that I showed her$_i$ to him.'

References

Anagnostopoulou, Elena. 2017. The person case constraint. In *The Wiley Blackwell Companion to Syntax*, ed. Martin Everaert and Henk van Riemsdijk, 1–47. New York City: Wiley Blackwell.

Bhatt, Rajesh, and Radek Šimík. 2009. Variable binding and the person-case constraint. Handout from 25th Annual Meeting of the Israel Association for Theoretical Linguistics (IATL 25).

Heim, Irene. 2008. Features on bound pronouns. In *Phi-theory: Phi features across modules and interfaces*, ed. Daniel Harbour, David Adger, and Susana Béjar, 35–56. Oxford: Oxford University Press.

Kratzer, Angelika. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40:187–237.

Partee, Barbara. 1989. Binding implicit variables in quantified contexts. In *Papers from the 25th regional meeting of the Chicago Linguistic Society (CLS25)*, ed. Caroline Wiltshire, Randolph Graczyk, and Bradley Music, 342–365. Chicago: Chicago Linguistic Society.

Sauerland, Uli. 2013. Presuppositions and the alternative tier. In *Proceedings of Semantics and Linguistic Theory 23 (SALT23)*, ed. Todd Snider, 156–173.

Sudo, Yasutada. 2012. On the Semantics of Phi-features on Pronouns. Doctoral Dissertation, Massachusetts Institute of Technology.

von Stechow, Arnim. 2003. Feature deletion under semantic binding: tense, person, and mood under verbal quantifiers. Ms. Universität Tübingen.

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Alternatives of disjunctions: when a disjunct contains the antecedent of a pronoun

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For disjunctive sentences of the form "$f(X \text{ or } Y)$", classical theories of exhaustification crucially rely on the co-existence of the alternatives "$f(X)$" and "$f(Y)$" (see Fox and Katzir 2011, as well as Bar-Lev and Fox 2017). Abstractly, this co-existence prevents disjunctive sentences from implying that "$f(X)$" and "$f(Y)$" have different truth values (see Klinedinst 2005; Chemla 2009).

Now, consider (1). It contains a disjunction and, accordingly, implies the negation of two propositions that resemble the usual "$f(X)$" and "$f(Y)$" alternatives: "Every dad called his daughter" and "Every dad called his daughter's dog". In the former, we recognize the usual, first-disjunct alternative "$f(X)$" = (2a). But the latter is harder to find. Keeping only the second disjunct creates "$f(Y)$" = (2b), which does not mean "Every dad called his daughter's dog".

(1) Every dad$_i$ called [his$_i$ daughter]$_j$ or her$_j$ dog. $= f(X \text{ or } Y)$

(2) a. Every dad$_i$ called his$_i$ daughter. $= f(X)$

b. Every dad$_i$ called her$_j$ dog. $= f(Y)$

A first option is to take these cases as showing that more involved semantic binding solutions are needed (see Charlow 2019b). In this view, one can argue that a (2b)-like alternative can do the trick: although it does not seem feasible on the surface, at LF "her$_j$ dog" may receive what is called a paycheck interpretation "his daughter's dog" (Geach 1962; Karttunen 1969). We further note that a continuation of (1) with (3) cannot mean that no mother looked for her own dog. This would be the case if the LF were as in (4), with $i = j$. Instead, the continuation means that no mother looked for her daughter's dog. This can be explained if the pronoun x_j in (4) is constrained to receive a paycheck interpretation and refer to x_i's daughter, just like one would say about "her$_j$" in (2b) then.

(3) But no mother did the latter.

(4) But no mother$_i$ did ⟨call x_j's dog⟩.

A second option, however, is to abandon the attractive idea that the disjunct alternatives are obtained by deletion of one disjunct (as formalized and motivated in Katzir 2007; see also the potential importance of replacement alternatives for acquisition facts in Barner et al. 2011, and for processing facts in Chemla and Bott 2014). Instead, Uli Sauerland (2004) proposed early on and provocatively (as "more of a technical trick, than a real solution", he then wrote) that these alternatives could be obtained via the replacement à la Horn (1972) of the disjunction "or" with operators **L** and **R**, which retain both disjuncts structurally, and assert the truth of the **L**eft disjunct

and of the **R**ight disjunct, respectively. This has the potential to make both alternatives structurally acceptable, as we would obtain:

(5) a. Every dad$_i$ called [his$_i$ daughter]$_j$ **L** her$_j$ dog. $= f(X \mathbf{L} Y)$
b. Every dad$_i$ called [his$_i$ daughter]$_j$ **R** her$_j$ dog. $= f(X \mathbf{R} Y)$

The **L/R** operators have the advantage that they retain all the structure of the initial disjunction. Concerning (3) then, it would not be necessary to resort to paycheck pronouns. The continuation could be rendered as in (6), as if "the latter" provided some trace of **R** in the lexicon after all (and likewise for "the former" and **L**).

(6) But no mother$_i$ did $\langle$call [x_i's daughter]$_j$ **R** x_j's dog$\rangle$.

In conclusion, whatever option above is adopted, alternatives are best understood at the level of LF because neither (2b) nor (5b) is a helpful English sentence. This provides a new argument for views expressed clearly by Katzir (2007), for which Charlow (2019a) and Chemla (2007) provide some empirical arguments, and for which Buccola et al. (2018) provide conceptual discussion. More generally, we must derive alternatives for disjunctions, whether these structures are obtained by deletion or **L/R** replacements. Studying the interpretations of these structures can provide information about the derivation of alternatives, as well as about the range of abstract semantic processes available for logical forms.

References

Bar-Lev, Moshe, and Danny Fox. 2017. Universal free choice and innocent inclusion. In *Proceedings of the 27th Semantics and Linguistic Theory Conference (SALT 27)*, ed. Dan Burgdorf, Jacob Collard, Sireemas Maspong, and Brynhildur Stefánsdóttir, 95–115.

Barner, David, Neon Brooks, and Alan Bale. 2011. Accessing the unsaid: The role of scalar alternatives in children's pragmatic inference. *Cognition* 118:84–93.

Buccola, Brian, Manuel Križ, and Emmanuel Chemla. 2018. Conceptual alternatives: Competition in language and beyond. Ms. Paris.

Charlow, Simon. 2019a. Scalar implicature and exceptional scope. Ms. Rutgers University.

Charlow, Simon. 2019b. The scope of alternatives: Indefiniteness and islands. *Linguistics and Philosophy* .

Chemla, Emmanuel. 2007. French *both*: A gap in the theory of antipresupposition. *Snippets* 15:4–5.

Chemla, Emmanuel. 2009. Similarity: Towards a unified account of scalar implicature, free choice permission, and presupposition projection. Ms. Paris and Cambridge, MA.

Chemla, Emmanuel, and Lewis Bott. 2014. Processing inferences at the semantic/pragmatic frontier: Disjunctions and free choice. *Cognition* 130:380–396.

Fox, Danny, and Roni Katzir. 2011. On the characterization of alternatives. *Natural Language Semantics* 19:87–107.

Geach, Peter T. 1962. *Reference and Generality: An examination of some Medieval and modern theories*. Ithaca, NY: Cornell University Press.

Horn, Laurence R. 1972. On the Semantic Properties of Logical Operators in English. Doctoral Dissertation, University of California, Los Angeles.

Karttunen, Lauri. 1969. Pronouns and variables. In *Papers from the Fifth Regional Meeting of the Chicago Linguistic Society (CLS5)*, ed. Robert I. Binnick, 108–116. Chicago: Department of Linguistics, University of Chicago.
Katzir, Roni. 2007. Structurally-defined alternatives. *Linguistics and Philosophy* 30:669–690.
Klinedinst, Nathan. 2005. Freedom from authority. Talk presented at *Sinn und Bedeutung 10*, Berlin.
Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:367–391.

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Scoping NPIs out of DPs

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We present new data showing that quantifiers can take scope over the DPs in which they surface. We identify some problems for two types of non-movement accounts of these data (see Sauerland 2005 for arguments that QR is possible out of DPs, *pace* Larson 1985 i.a.). *Any*-DPs tend to be unacceptable in singular definite descriptions, even when these occur below negation (1). This is attributed to singular definite descriptions constituting Strawson upward-entailing environments, in which NPIs are unacceptable (e.g., Lahiri 1998).

(1) *John didn't read the book that was written by any Russian author.

However, (2), a minimal variant of (1), is acceptable. (2) can be asserted after going through a list of Russian authors paired with their salient books (John didn't read the book that Dostoyevsky wrote, John didn't read the book that Tolstoy wrote, etc.). Note that asserting (1) in this setup does not improve its acceptability. The interpretation of (2) is in (3), where the existential quantifier appears in the immediate scope of negation. The sentence also presupposes that each Russian author wrote a single salient book. How do we get at this interpretation?

(2) John didn't read the book that any Russian author wrote.

(3) $\neg\exists x$(x is a Russian author & John read the book x wrote)

One possible analysis is that we are dealing with a special "free-choice *any*" in (2), which is a universal quantifier (e.g., Dayal 1998). Sharvit (1999) argues that universal quantifiers can scope out of DPs by means of typeshifting (which is restricted to universal quantifiers). Following Ladusaw (1979), however, it can be shown that this analysis would in many cases yield incorrect interpretations (see Chierchia 2013; Crnič 2019 for independent issues). For example, (4a) has a stronger meaning, (4b), than the wide-scope reading of *every Russian author* (or its intermediate-scope reading for that matter), (4c): it is judged false in a situation in which there are five Russian authors, each of whom wrote a unique book, and that book was read by four different people (that is, twenty readers altogether).

(4) a. Fewer than five students read the book that any Russian author wrote.

b. $= \max_n \left(\exists x \begin{pmatrix} x \text{ is a Russian author} \\ \& \ n \text{ students read the book that } x \text{ wrote} \end{pmatrix} \right) < 5$

c. $\neq \forall x \begin{pmatrix} x \text{ is a Russian author} \\ \rightarrow \max_n(n \text{ students read the book that } x \text{ wrote}) < 5 \end{pmatrix}$

Another possible analysis is to take *any*-DP to be a choice function indefinite whose scope is determined by existential closure over the choice function higher in the clause; that is, that the sentence in (2) has the representation in (5) (see Schwarz 2011 for a review).

(5) neg [$\exists_f$ [John read [the book$_y$ that f(Russian author) wrote y]]]

In contrast to the first analysis, the meaning of (5) correctly corresponds to (3). However, two issues emerge. First, the contrast between (1) and (2) is unexpected: wide-scope construals of indefinites in non-subject positions, as in (1), are well attested. Second, the required intermediate readings, as in (3), appear not to be attested for other indefinites, (6) (which only allows for the widest/lowest-scope interpretations of the indefinite).

(6) John didn't read the book that a Russian author wrote.

In light of these issues, one may want to entertain a movement approach to the above data. The meaning in (3) is derived straightforwardly under such an approach; indeed, it follows from the LF in (7), in which the NPI has QRed out of the DP. Furthermore, the subject/non-subject asymmetry between (1)/(2) could be attributed to independent restrictions on A'-movement (e.g., Bruening 2001; see also Sauerland 2000). Many non-trivial issues arise, however, including issues involving (i) movement out of purported islands and (ii) asymmetries in what quantifiers may undergo such movement (as exemplified by the contrast between NPIs vs. other indefinites in (2) vs. (6)).

(7) neg [[any Russian author]$_x$ [John read the book$_y$ [that x wrote y]]]

References

Bruening, Benjamin. 2001. QR obeys superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233–273.

Chierchia, Gennaro. 2013. *Logic in Grammar: Polarity, free choice, and intervention*. Oxford, England: Oxford University Press.

Crnič, Luka. 2019. *Any*: Logic, likelihood, and context. Ms. The Hebrew University of Jerusalem.

Dayal, Veneeta. 1998. *Any* as inherently modal. *Linguistics and Philosophy* 21:433–476.

Ladusaw, William A. 1979. Polarity Sensitivity as Inherent Scope Relations. Doctoral Dissertation, University of Texas at Austin, Austin, TX.

Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6:57–123.

Larson, Richard K. 1985. Quantifying into NP. Ms. Massachusetts Institute of Technology.

Sauerland, Uli. 2000. Syntactic economy and Quantifier Raising. Ms. Universität Tübingen.

Sauerland, Uli. 2005. DP is not a scope island. *Linguistic Inquiry* 36:303–314.

Schwarz, Bernhard. 2011. Long distance indefinites and choice functions. *Language and Linguistics Compass* 5:880–897.

Sharvit, Yael. 1999. Functional relative clauses. *Linguistics and Philosophy* 22:447–478.

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Some contexts requiring precise number meanings

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Round numerals can sometimes convey approximate meanings. In cases such as (1), this is straightforwardly possible, conjecturally, because the round numeral 100 represents a point on a coarse-grained number scale (Krifka 2009). (1) can be judged true in situations in which 98 or 102 people attended, which can be explained only by *100 people* acquiring an approximate interpretation.

(1) 100 people attended.

Krifka argues that approximate interpretations of numerals might be cognitively preferred because they involve less complex representations. But curiously, when numerals are modified, the approximate interpretation appears generally to be suppressed, as discussed by Solt (2014). Even though *100 people* on its own might mean 98 or 102 people, (2) and (3) are judged as false.

(2) #More than 100 people attended – to be precise, 99.

(3) #Fewer than 100 people attended – to be precise, 101.

One potential explanation of this is that adopting the approximate interpretation of the number term, if it were available, would obligatorily interact with *more/fewer than n* such that, for instance, *more than 100 people attended* was true only if the attendance exceeded anything that could be referred to as just "100 people" (for instance, 102 people). Under this assumption, the approximate interpretation would make the overall meaning of these sentences stronger, whereas it makes the meaning of (1) weaker.

Solt (2014) adopts a similar explanation for the distributional restrictions on the explicit approximator *about*, which cannot be felicitously added to rescue (2) or (3), although it can rescue *no(t) more/fewer than*, as in (4).

(4) No(t) more than about 100 people attended – to be precise, 101.

On Solt's account this is because *about* explicitly strengthens the speaker's commitment in the *more/fewer than* case, but weakens it in the *no(t) more/fewer than* case, thus making it possible for a speaker to utter (4) in cases where they could not commit to its truth without *about*.

Given that round numbers *per se* fail to contribute approximate meaning in (2)-(4), a broader question is to what extent they can contribute approximate meaning to complex sentences in general. Consider (5) and (6).

(5) You can have 2000 calories a day without putting on weight.

(6) If you consume 700mcg of Vitamin A per day, that will improve your health.

In these cases, precise interpretations would be superficially useless to the hearer, who could not achieve the precise intake of calories or Vitamin A that would guarantee them the beneficial consequences mentioned. Background knowledge might induce us to interpret (5) as though the number were upper-bounding, but this does not apply to (6).

Again, in both (5) and (6), interpreting the number as approximate serves to make the speaker's claim stronger, as the condition imposed on the grant or assertion would be satisfied in more circumstances than it would under a precise interpretation. By analogy with (2) and (3), the approximate interpretation should be blocked in this context, in which case any inferences about what should happen if you consume 2001 calories or 699mcg of Vitamin A per day must rely on real-world knowledge about the likely (non-)effect of a sufficiently small change in intake. However, it is not intuitively obvious that the hearer has to rely on this kind of indirect method to obtain the required inference, rather than simply adopting the convenient approximate interpretation of the round number. If the latter explanation is correct, it suggests that the licensing of approximate interpretation of numerals cannot simply be explained by assertion strength.

References

Krifka, Manfred. 2009. Approximate interpretations of number words: A case for strategic communication. In *Theory and Evidence in Semantics*, ed. Erhard W. Hinrichs and John Nerbonne, 109–132. Stanford: CSLI Publications.

Solt, Stephanie. 2014. An alternative theory of imprecision. In *Proceedings of the 24th Semantics and Linguistic Theory Conference (SALT24)*, ed. Todd Snider, Sarah D'Antonio, and Mia Weigand, 514–533.

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Exactly one theory of multiplicity inferences

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Spector (2007) observes that an utterance of (1) gives rise to the inferences in (1a) and (1b), in which the plural nominal *difficult problems* is interpreted exclusively and inclusively respectively.

(1) Exactly one of my students has solved difficult problems.
   a. One of my students has solved *more than one* difficult problem
   b. None of my other students have solved *one or more* difficult problems

To explain this, Spector proposes that the literal meaning of (1) is *inclusive*, but is pragmatically strengthened relative to (2).

(2) EXH (Exactly one of my students has solved a difficult problem)

The meaning of (2), in turn, is derived by conjoining the (inclusive) meaning of the prejacent of EXH with the negation of its alternative. Spector assumes that *a NP* has *several NPs* as its alternative. As a result, (2) is equivalent to (3).

(3) One of my students solved one difficult problem, and no other student solved any difficult problem.

As the reader can verify, conjoining the literal meaning of (1) with the negation of (2) (i.e., the negation of (3)) entails both (1a) and (1b).

Spector's account relies on unprincipled assumptions concerning formal alternatives: the unexhaustified singular form in (2) must be an alternative to (1), and as noted, the singular form must have an alternative with *several*. Crucially, however, the plural cannot have an alternative with *several*, otherwise the multiplicity inference would not be derived. In other words, alternativehood, for Spector, must be non-transitive.

We propose a different account that does away with these assumptions. In line with Spector (2007), we adopt the view that the exclusive interpretation of the plural is an implicature. For concreteness, we follow Mayr's (2015) account, framed in terms of predicate-level exhaustification: singular NPs, which range over atoms, are scalar alternatives to plural NPs, which range over atoms and groups. Applying EXH to a plural NP yields a multiplicity implicature by winnowing out the atoms (4).

(4) A student has solved EXH [difficult problems]
   $\Rightarrow$ a student has solved *more than one* difficult problem

Second, we draw on Sauerland's (2013:159) analysis of *exactly* as a focus sensitive expression: much like *only*, *exactly* takes a proposition p that contains a focused element (i.e., a numeral) and returns that (i) p is true, and (ii) for every $q \in ALT(p)$ that is not entailed by p, $\neg q$ is true. This is illustrated in (5).

(5) Exactly/Only [ONE$_F$ student came to the meeting]
   a. one student came to the meeting
   b. ¬[*n* students came to the meeting], for any numeral $n > one$

Third, we rely on previous findings (e.g., Gajewski and Sharvit 2012; Alxatib 2014; Bar-Lev 2018) showing that, in the scope of expressions like *only*, implicatures are generated in the upward-entailing (UE) component (e.g., in the prejacent), yet disappear in the downard-entailing (DE) component (e.g., in the negated alternatives). We illustrate this for *exactly/only* below, using the *not-all* implicature associated with *some*.

(6) Exactly/Only [ONE$_F$ student ate some of the cookies]
   a. UE component: implicature
   one student ate some *but not all* of the cookies
   b. DE component: no implicature
   ¬[*n* students ate some of the cookies], for any numeral $n > one$

We propose that the case in (1) is another instance of the above phenomenon: a multiplicity implicature is generated in the UE-prejacent of *exactly*, delivering (1a), but not in its DE-alternatives, hence (1b). The intuition here is that EXH can be rendered vacuous in these DE-alternatives as its working would otherwise weaken their meaning (7). This should ultimately follow from the Economy condition constraining the distribution of EXH (a.o., Fox and Spector, 2018).

(7) Exactly [ONE$_F$ student solved EXH [difficult problems]]
   a. one student solved EXH [difficult problems]
   ⇒ one student solved *more than one* difficult problems
   b. ¬[*n* student solved ~~EXH~~ [difficult problems]], for any numeral $n > one$
   ⇒ none of the other students have solved *one or more* difficult problems

To close, our account relies on decomposing an apparently non-monotonic operator into a UE and a DE component. Hence, we predict that if a non-monotonic operator cannot be analyzed in this way, the implicatures should be distinct.

References

Alxatib, Sam. 2014. Free choice disjunctions under only. In *Proceedings of the 44th Annual Meeting of the North East Linguistic Society (NELS 44)*, ed. Jyoti Iyer and Leland Kusmer, 15–28. Amherst, MA: GLSA.

Bar-Lev, Moshe E. 2018. Free Choice, Homogeneity, and Innocent Inclusion. Doctoral Dissertation, The Hebrew University of Jerusalem.

Fox, Danny, and Benjamin Spector. 2018. Economy and embedded exhaustification. *Natural Language Semantics* 26:1–50.

Gajewski, Jon, and Yael Sharvit. 2012. In defense of the grammatical approach to local implicatures. *Natural language semantics* 20:31–57.

Mayr, Clemens. 2015. Plural definite NPs presuppose multiplicity via embedded exhaustification. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 204–224.

Sauerland, Uli. 2013. Presuppositions and the alternative tier. In *Proceedings of the 23rd Semantics and Linguistic Theory Conference (SALT 23)*, ed. Todd Snider, 156–173.
Spector, Benjamin. 2007. Aspects of the pragmatics of plural morphology: On higher-order implicatures. In *Presupposition and Implicature in Compositional Semantics*, ed. Uli Sauerland and Penka Stateva, 243–281. Basingtoke: Palgrave Macmillan.

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Two coordinating particles are better than one: free choice items in Romanian

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There has been a significant surge in cross-linguistic analyses of the internal composition of quantifier words and coordination constructions recently (e.g., Szabolcsi 2018; Szabolcsi, Whang, and Zu 2014; Mitrović and Sauerland 2014, 2016; Mitrović Forthcoming). Most cases investigated follow one of two possible morphological patterns: (i) disjunction+wh-word items (DiWhIs) or (ii) conjunction+wh-word items (CoWhIs).

In this snippet we bring to light another pattern: (iii) disjunction+conjunction+wh-word items (DiCoWhIs). Romanian has a productive series of such items, though its use seems subject to dialectal variation. *Ori* and *şi* can occur as free morphemes and represent the default disjunctive and conjunctive items respectively in Romanian. *Ori* can productively combine on its own with a wh-word, giving rise to universal free choice items (FCIs) such as *ori-cine* (Disj-who) 'anyone' (e.g., Farkas 2013). *Şi* cannot, on its own, morphologically combine with a wh-word, or any other particle (**şi-cine*). This gives rise to the following question: what is the contribution of *şi* in DiCoWhIs?

The interpretation of DiCoWhIs is the same as that of FCIs, like the Romanian DiWhI *oricine* and English *whoever* (1a), namely free choice in combination with indifference on the part of the speaker. Unlike FCIs, DiCoWhIs are restricted to unconditional constructions (1a) versus (1b), where they require the conditional mood (1c). FCIs show no such restrictions.

(1) a. Ori-cine/orişi-cine m-ar căuta azi, nu sunt disponibilă.
Di-who/DiCo-who me-COND.3SG look.for today NEG am available
'Whoever looks for me today, I'm not available.'

b. La ora asta aş mânca ori-ce/*orişi-ce.
At hour this COND.1SG eat Di-what/DiCo-what
'Right now, I would eat anything.'

c. Ori-ce/*orişi-ce va găti Ion, mama va fi încântată.
Di-what/DiCo-what will cook Ion mother will be pleased
'Whatever Ion will cook, mother will be pleased.'

Based on these data we conclude that the *şi* morpheme is not vacuous, or else the DiWh and DiCoWh items should fully align in their distribution. This morpheme seems to be responsible for (i) the restriction to unconditionals, and (ii) the conditional mood requirement. These properties are not expected under the two main approaches to unconditionals. One approach is due to Szabolcsi (2019), who argues that unconditionals in Hungarian are an instance of universal FC constructions, thereby predicting that any element which can occur in an unconditional should also be able occur in a FC construction (like English *wh+ever* can). The data in (1) show that her account cannot

extend to Romanian. The other approach, put forth by Rawlins (2008, 2013) and Hirsch (2016), is tailored to English and derives unconditionals from questions, thereby making no predictions about the distributional overlap between unconditionals and FC constructions. Neither account can explain the mood requirement since in principle any modal(izing) operator could trigger the FC flavor that both approaches take to be at the heart of unconditionals. DiCoWhIs are, to our knowledge, the first elements restricted to unconditionals, thereby challenging existing generalizations regarding the overlap between items that can occur in unconditionals and other FC constructions.

More generally, the investigation of this previously unobserved combination of coordinating particles can contribute to a better understanding of the morpho-semantics of quantificational paradigms cross-linguistically. Currently, there are at least two reasons why DiCoWhIs present difficulties for existing theories. On the one hand, current theories provide mechanisms to interpret DiWhIs and CoWhIs, but no compositional procedure for how to interpret the co-occurrence of both of these particles at the word-internal level. On the other hand, while we know that these particles can affect the behavior of the *wh*-items they combine with (e.g., with respect to quantificational force, polarity restrictions, and interacting with modality), none of the work on this topic discusses particles restricting the distribution of their host with respect to mood. Could this be a result of the co-occurrence of two particles rather than solely due to *şi*?

References

Farkas, Donka. 2013. The semantics of determiners. In *A Reference Grammar of Romanian*, ed. Carmen Dobrovie-Sorin and Ion Giurgea, 175–230. Amsterdam: John Benjamins.

Hirsch, Aron. 2016. A compositional semantics for *wh-ever* free relatives. In *Proceedings of Sinn und Bedeutung 20*, ed. Nadine Bade, Polina Berezovskaya, and Anthea Schöller, 341–358.

Mitrović, Moreno. Forthcoming. *Superparticles: A microsemantic theory, typology, and history of logical atoms*. Dordrecht: Springer.

Mitrović, Moreno, and Uli Sauerland. 2014. Decomposing coordination. In *Proceedings of the 44th Annual Meeting of the North East Linguistic Society (NELS 44)*, ed. Jyoti Iyer and Leland Kusmer, 39–52. Amherst, MA: GLSA.

Mitrović, Moreno, and Uli Sauerland. 2016. Two conjunctions are better than one. *Acta Linguistica Hungarica* 63:471–494.

Rawlins, Kyle. 2008. (Un)conditionals: An Investigation in the Syntax and Semantics of Conditional Structures. Doctoral Dissertation, University of California, Santa Cruz.

Rawlins, Kyle. 2013. (Un)conditionals. *Natural Language Semantics* 21:117–178.

Szabolcsi, Anna. 2018. Two types of quantifier particles: Quantifier-phrase internal vs. heads on the clausal spine. *Glossa: A Journal of General Linguistics* 3:69.

Szabolcsi, Anna. 2019. Unconditionals and free choice unified. Ms. New York University.

Szabolcsi, Anna, James Doh Whang, and Vera Zu. 2014. Quantifier words and their multifunctional(?) parts. *Language and Linguistics* 15:115–155.

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Individual concepts and narrow scope illusions

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(1), inspired by an example from Schwarzchild (To appear), can be true even if there are no actual boxcars (e.g. no freight train planned for the region). This rules out a de-re construal (even if one is creative about counter-part relations or concept-generators; Percus and Sauerland 2003, Sauerland 2014).

(1) {Jack and Jill, both train enthusiasts, discuss a high-speed freight train that they think will be built in their region. They agree that there will be four different boxcars painted red, blue, yellow and green. Jack is hoping to ride on the red, blue, and yellow boxcars. Jill is hoping to ride the red and blue boxcars.}

Jack is hoping to ride on every boxcar that Jill is.

Given the de-dicto interpretation, we might think that the quantifier phrase *every boxcar* is interpreted within the scope of the attitude verb *hope*. But then Antecedent Contained Deletion (ACD) would not be resolved, contrary to fact.

Should we revisit our assumptions about ACD? The risk is to leave well-known observations about scope unaccounted for (Sag 1976, Williams 1977, Larson and May 1990). To see the challenge, consider a minimal variation on (1) below, modelled on an example from Sag.

(2) {Jill is a train enthusiast. Jack has no interest in trains and has never thought about the properties of boxcars in a train that Jill hopes will be built in the region. However, he's very much interested in impressing Jill. If asked which boxcars he hopes to ride, he'd answer: "Every boxcar that Jill is hoping to ride."}

Jack is hoping to ride on every boxcar that Jill is. [false]
(Cf. *Jack is hoping to ride on every boxcar that Jill is hoping to ride on.*)

(2) is false, and this teaches us that *every boxcar* must take scope outside of the intensional verb *hope* for ACD to be resolved, which in turn means that in (1) this scopal relation still allows the noun *boxcar* to receive a de-dicto interpretation. The conclusion is further supported by the inverse scope de-dicto interpretation in (3); see Geach (1967) for related observations and proposals.

(3) {A group of children discuss a high-speed freight train that they hope will be built in their region. They agree that there will be four different boxcars painted red, blue, yellow, and green. One boy and one girl hope to ride on the red boxcar, another boy and girl hope to ride on the blue boxcar. The other two imagined boxcars do not interest any of the girls (though one of them might interest a third boy).}

A boy is hoping to ride on every boxcar that a girl is.

Based on (1) and (3), we must reject the assumption that a de-dicto interpretation for a noun requires narrow scope for the quantifier that the noun restricts (see Szabó 2010, Keshet and Schwarz 2019). But how are the wide scope de-dicto interpretations in (1) and (3) represented? I would like to suggest a version of *every* that quantifies over individual concepts with the lexical entries in (4) and (5), and a logical form for (1) as indicated in (6), with C a covert domain restrictor. (Considerations brought up in Aloni 2001 will have to wait for another occasion.)

(4) $[\![\text{every}]\!](C_{se,t})(A_{se,t})(B_{se,t}) \Leftrightarrow C \cap A \subseteq B$

(5) $[\![\text{boxcar}]\!] = \lambda x_{se}.\forall w \in \text{domain}(x)[x(w) \text{ is a boxcar in } w]$

(6) every C boxcar $\lambda x_{se}[\text{hoping}(\text{Jill}, \lambda w.\text{Jill ride}_w x(w))]$
$\lambda x_{se}[\text{hoping}(\text{Jack}, \lambda w.\text{Jack ride}_w x(w))]$

Where the denotation of C will have the four salient individual concepts as members: $\lambda w.$*the red boxcar in* w, $\lambda w.$*the blue boxcar in* w, ...

References

Aloni, Maria. 2001. Quantification under Conceptual Covers. Doctoral Dissertation, Amsterdam Institute for Logic, Language and Computation.

Geach, Peter. 1967. Intentional identity. *Journal of Philosophy* 64:627–632.

Keshet, Ezra, and Florian Schwarz. 2019. De re / De dicto. In *The Oxford Handbook of Reference*, ed. Jeanette Gundel and Barbara Abbott, 167–202. Oxford: Oxford University Press.

Larson, Richard K., and Robert May. 1990. Antecedent Containment or Vacuous Movement: Reply to Baltin. *Linguistic Inquiry* 21:103–122.

Percus, Orin, and Uli Sauerland. 2003. On the LFs of attitude reports. In *Proceedings of the Conference "SuB7 – Sinn und Bedeutung"*, ed. Matthias Weisgerber, 228–242. Konstanz, Germany: Universität Konstanz.

Sag, Ivan. 1976. Deletion and Logical Form. Doctoral Dissertation, Massachusetts Institute of Technology.

Sauerland, Uli. 2014. Counterparts block some 'de re' readings. In *The Art and Craft of Semantics: A Festschrift for Irene Heim, Vol. 2*, ed. Luka Crnič and Uli Sauerland, 65–85. Cambridge, MA: MIT Working Papers in Linguistics.

Schwarzchild, Roger. To appear. From possible individuals to scalar segments. In *Degree and quantification*, ed. Peter Hallman. Brill.

Szabó, Zoltán Gendler. 2010. Specific, yet opaque. In *Logic, Language and Meaning: 17th Amsterdam Colloquium, Amsterdam, The Netherlands, December 16-18, 2009, Revised Selected Papers*, ed. Maria Aloni, Harald Bastiaanse, Tikitu de Jager, and Katrin Schulz, 32–41. Springer-Verlag Berlin Heidelberg.

Williams, Edwin S. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8:101–139.

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Degree concepts and narrow scope illusions

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In (1), from Schwarzchild (To appear), the differential, *one boxcar*, is evaluated in the worlds quantified over by the attitude verb *expect.*

(1) {Jack and Jill are train enthusiasts. They've been discussing a high-speed freight train planned for their region. They wonder whether the boxcars will be 60 ft. long, like on the Santa Fe line, or 50 ft. long, like on the Caroliner. As far as the engine is concerned, Jack and Jill disagree. Jack's expectation is that the engine will be 2 boxcars long. Jill expects it to be one boxcar long.}

Jack expects the engine to be one boxcar longer than Jill does.

Suppose that this de-dicto interpretation requires the differential to be interpreted within the scope of the attitude verb. This leads to an obvious puzzle: (1) should be unacceptable, under the standard assumption that the phrase headed by *-er* contains both the differential and the *than* clause (and must QR over the attitude verb for ACD resolution).

Schwarzschild uses this observation, among many others, to argue against the standard assumption. While I will not challenge Schwarzschild's other arguments, I would like to suggest that (1) argues, instead, against the assumption that de-dicto interpretations always indicate narrow scope (See Szabó 2010 and Keshet and Schwarz 2019). Consider a version of *-er* that quantifies over degree concepts.

(2) $[\![\text{-er}]\!](C)(\delta_{sd})(A_{sd,t})(B_{sd,t}) \Leftrightarrow \forall d \in C \cap A \exists d' \in C \cap B[d' \geq (d +_c \delta)]$
where $d'_{sd} \geq d_{sd}$ iff $\forall w \in \text{domain}(d) \cap \text{domain}(d')[d'(w) \geq d(w)]$
and $d +_c \delta = (\iota d^* \in C)(\forall w \in \text{domain}(d) \cap \text{domain}(\delta)[d(w) +_c \delta(w) = d^*(w)])$

Now, consider a standard logical form for (1), as in (3).

(3) $\text{-er}_{13}\, C$ one boxcar
$\text{than}\, \lambda d\, \text{expects}(\text{Jill}, \lambda w.\, \text{the engine}_w\, \text{is}\, d(w)\, \text{long})$
$\lambda d\, \text{expects}(\text{Jack}, \lambda w.\, \text{the engine}_w\, \text{is}\, d(w)\, \text{long})$
True iff
$\forall d \in C \cap \{d_{sd} : \text{expects}(\text{Jill}, \lambda w.\, \text{the engine}_w\, \text{is}\, d(w)\, \text{long})\}$
$\exists d' \in C \cap \{d_{sd} : \text{expects}(\text{Jack}, \lambda w.\, \text{the engine}_w\, \text{is}\, d(w)\, \text{long})\}$
$[d' \geq (d +_c \lambda w.\, \text{the-length-of-the-boxcar in } w)]$

To evaluate the predicted meaning, we need to know what C is. If we assume that the differential makes the following set of degree concepts salient $\{\lambda w.\, \text{the length of } r \text{ boxcars in } w :$

r a rational number} (hence a candidate for the denotation of C), the right truth conditions can be derived.

Such an analysis can be extended to other degree constructions, some of which cannot be covered by Scwarzschild's proposal, as illustrated in the examples below.

(4) {Regulations for a high-speed freight train require the engine to be at least two boxcars long. Other than that, there are no length requirements. In particular the engine can be as short as planners want it to be, provided that the boxcars are shortened accordingly.}

How long is the boxcar required to be?
Possible answers (depending on the set of salient degree concepts):

a. Two boxcars long
b. Any length is allowed (as long as the required proportion with boxcars is adhered to).

(5) {Jack and Jill's expectations are as in Schwarzchild's scenario. But here's how things turned out. The boxcar was built to be 50 ft. long, and the engine was built to be twice the size of the boxcar as expected by Jack, but not by Jill}

a. The engine is one boxcar longer than Jill expected it would be. True
b. The engine is 50 feet longer than Jill expected it would be. False

(6) {Jill is an engineer who needs to approve plans for a high-speed freight train. She is told by the planners that the boxcars will be either all 60 ft. long or all 50 ft. long. She demands that the engine be at least 2 boxcars long and that the caboose be at least one boxcar long}

The engine is required to be one boxcar longer than the caboose is.

References

Keshet, Ezra, and Florian Schwarz. 2019. De re / De dicto. In *The Oxford Handbook of Reference*, ed. Jeanette Gundel and Barbara Abbott, 167–202. Oxford: Oxford University Press.

Schwarzchild, Roger. To appear. From possible individuals to scalar segments. In *Degree and quantification*, ed. Peter Hallman. Brill.

Szabó, Zoltán Gendler. 2010. Specific, yet opaque. In *Logic, Language and Meaning: 17th Amsterdam Colloquium, Amsterdam, The Netherlands, December 16-18, 2009, Revised Selected Papers*, ed. Maria Aloni, Harald Bastiaanse, Tikitu de Jager, and Katrin Schulz, 32–41. Springer-Verlag Berlin Heidelberg.

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Disjunction, conjunction, and exhaustivity

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Consider sentence in (1a), taken from Sauerland (2004). Sauerland and Yatsushiro (2018) inform us that, as a preschooler, Kai from (1) did not compute the scalar inference negating the conjunctive alternative in (1b). Now consider the following question: did Kai have cauliflower? That is, does the disjunctive phrase in (1a) trigger an inference about other potential alternatives such as (1c)? And is this inference equally strong for conjunctive phrases? This snippet focuses on the interaction between disjunction, conjunction, and exhaustivity effects.

(1) a. Kai had broccoli or peas last night.
b. Kai had broccoli and peas last night.
c. Kai had cauliflower last night.

Note that the conjunction in (1b) could be continued by saying that *Kai also had cauliflower*, although this seems less natural as a continuation to the disjunction in (1a). In a sentence picture verification task in Gotzner 2019, adults were more likely to derive an exhausitivity implicature with disjunction compared to conjunction (for details see https://osf.io/ahs45/). Specifically, adults tended to reject a disjunctive statement in a situation that does not exhaustively describe the scene (sentence: *The tiger or the penguin has a ball*; picture: tiger-has ball, penguin-has no object, pig-has ball; results: 45% FALSE judgments). On the contrary, almost all participants accepted a conjunctive statement in a corresponding non-exhaustive situation (sentence: *The tiger and the penguin have a ball*; picture: tiger-has ball, penguin-has ball, pig-has ball; results: 5% FALSE judgments). A similar pattern emerges in 4-5 year olds, who do not compute the scalar inference associated with disjunction (Gotzner et al. 2019).

How can we explain the fact that the choice of scalar element affects whether an exhaustivity implicature is derived? There are two likely candidates driving this difference. (i) Disjunction, but not conjunction, is associated with additional ignorance inferences. (ii) There is a difference in the relative complexity of sentences with disjunction and conjunction and their associated alternatives.

Explanation (i) assumes that a disjunctive statement like (1a) does not inform us which of the mentioned vegetables Kai had, due to ignorance implicatures. Hence, the listener may reason that no other contextual alternative is true. Conversely, the conjunction in (1b) already informs us that Kai definitely had both kinds of vegetables. Therefore, the issue of whether other alternatives are true does not arise.

Explanation (ii) is based on the structural account of alternatives by Fox and Katzir (2011), according to which alternatives are at most as complex as the original utterance. A disjunctive statement, S(A or B), has both less complex stronger alternatives and equally complex ones, involving additional contextual alternatives, for example S(A and C). On the other hand, a conjunctive statement, S(A and B), only has a stronger alternative that is more complex, S(A and B and C). Based

on complexity considerations, this alternative should not be negated. According to Fox and Katzir (2011), logically independent alternatives could be added from the context. However, the simple S(C) does not seem to be a relevant alternative to the conjunction either.

Both explanations considered here make additional interesting predictions concerning the interaction of scalars, ignorance inferences and exhaustivity. For example, in a context that does not license ignorance implicatures, would the exhaustivity implicature associated with disjunction disappear?

References

Fox, Danny, and Roni Katzir. 2011. On the characterization of alternatives. *Natural language semantics* 19:87–107.

Gotzner, Nicole. 2019. Disjunction, conjunction, and exhaustivity. Ms. Berlin.

Gotzner, Nicole, David Barner, and Stephen Crain. 2019. Disjunction triggers exhaustivity implicatures in 4-to 5-year-olds. Ms. Berlin.

Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and philosophy* 27:367–391.

Sauerland, Uli, and Kazuko Yatsushiro. 2018. The acquisition of disjunction: Evidence from German children. In *Proceedings of Sinn und Bedeutung 21*, ed. Robert Truswell, Chris Cummins, Caroline Heycock, Brian Rabern, and Hannah Rhode, 1065–1072.

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On Haddock's puzzle and the role of presupposition in reference resolution

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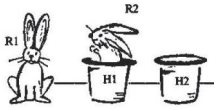
A magician is working with two rabbits and two hats; one of the hats has a rabbit in it, the other is empty (2). As Haddock (1987) points out, if speaker and audience are cognizant of this situation the definite description in (1a) can be used felicitously to refer to the rabbit that is in one of the hats – even though there are two hats in the utterance situation. Interestingly, the utterance in (1b) is infelicitous as a description of the very same scene.

(1) a. The rabbit in the hat is happy.
b. #The rabbit is in the hat.

(2) 

This contrast is surprising. Comprehension requires in either case determining the referent for *the hat*, and the scene seems equally supportive in this regard – there is exactly one rabbit-hat pair with the former inside the latter. In (1a) that hat is an ingredient in identifying the intended rabbit, and in (1b) it is an ingredient of the sentence meaning, granting truth. Nevertheless, (1a) is perfectly felicitous, whereas (1b) is not. Reference resolution, then, appears to depend on linguistic form here, specifically on *the hat* being nested inside another definite DP, (e.g. Champollion and Sauerland 2011; Bumford 2017).

To see how nesting might have an impact, assume that *the*, much like a free pronoun, introduces an index i, whose value is given by the assignment a, while its NP sister contributes a constraint on the kind of entity that can serve as the value of i in the form of a presupposition (3a) (Postal 1970; Heim 1982, 2007; Elbourne 2005). We see that in the nested structure in (1a), the constraints accumulate to demand of the utterance situation that it contains a rabbit and a hat with the former inside the latter (3b). For (1b), however, the constraints project separately and do not yield a complex constraint tied together by the *in* relation (3c).

(3) a. $[\![\textbf{the}_i]\!]^a = \lambda f : f \in D_{\langle e,t\rangle} \,\&\, f(a(i)) = 1 \,.\, a(i)$

b. $[\![\textbf{the}_8\ \textbf{rabbit in the}_7\ \textbf{hat}]\!]^a = a(7)$ is a hat & $a(8)$ is a rabbit & $a(8)$ is in $a(7)$.

c. $[\![\textbf{the}_8\ \textbf{rabbit is in the}_7\ \textbf{hat}]\!]^a = a(8)$ is a rabbit & $a(7)$ is a hat. $a(8)$ is in $a(7)$

To exploit this difference we need a principle that regulates when information expressed in an utterance, which may in principle be sufficient to identify an intended referent, can in fact be used for the purpose of reference resolution. The conjecture in (4) serves as a first approximation.

(4) *Constraint on Reference Resolution*:
Presupposed content can be used for identifying the extension of referring expressions; at-issue content cannot.

(4) predicts, among other things, that embedding (1b) in the scope of suitable presupposition triggers removes infelicity. (5) provides a glimpse of the wide range of contrasts that are expected under (4) but difficult to explain under extant accounts of Haddock's Puzzle, such as Bumford 2017 or Champollion and Sauerland 2011.

(5) a. The rabbit is in the hat again.
b. Remove the rabbit from the hat! (Stone and Webber 1998)
(Cf. #*Put the rabbit in the hat!*)
c. The rabbit stopped being in the hat.
(Cf. #*The rabbit isn't in the hat.*)
d. John knows/regrets/realizes/ that the rabbit is in the hat.
(Cf. #*John thinks that the rabbit is in the hat.*)

To illustrate, (5a) contrasts markedly with (1b). On the present proposal, this is because *again* presupposes that there was an earlier time at which the relevant rabbit was in the relevant hat. On the assumption that accommodation is economical (preferring minimal changes to the input scene) the audience can be trusted to identify the rabbit that is currently inside a hat as the one that was previously inside the hat that is the intended referent of *the hat* in the utterance. Parallel comments apply to (5b-d).

References

Bumford, Dylan. 2017. Split-scope definites: Relative superlatives and Haddock descriptions. *Linguistics and Philosophy* 40:549–593.

Champollion, Lucas, and Uli Sauerland. 2011. Move and accommodate: A solution to Haddock's puzzle. In *Empirical Issues in Syntax and Semantics 8: Papers from CSSP 2009*, ed. Olivier Bonami and Patricia Cabredo Hofherr, 27–51. CSSP.

Elbourne, Paul D. 2005. *Situations and Individuals*. Cambridge, MA: The MIT Press.

Haddock, Nicolas. 1987. Incremental interpretation and combinatory categorical grammar. *Edinburgh Working Papers in Cognitive Science* 1:71–84.

Heim, Irene. 1982. The Semantics of Definite and Indefinite Noun Phrases. Doctoral Dissertation, University of Massachusetts, Amherst.

Heim, Irene. 2007. Forks in the road to Rule I. Talk presented at the 38th Annual Meeting of the North East Linguistic Society (NELS 38), Ottawa.

Postal, Paul M. 1970. On coreferential complement subject deletion. *Linguistic Inquiry* 1:349–500.

Stone, Matthew, and Bonnie L. Webber. 1998. Textual economy through close coupling of syntax and semantics. In *Proceedings of the Ninth International Workshop on Natural Language Generation, INLG 1998, Niagara-on-the-Lake, Ontario, Canada, August 5-7, 1998*.

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Symmetry, density, and formal alternatives

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Sauerland (2004) shows how the logical relations between a sentence and its alternatives either support scalar inferences (SIs) or ignorance inferences (IIs). Specifically, the logical relations between a disjunctive sentence $p \vee q$ and its alternatives $p \wedge q$, p, and q support a SI about $p \wedge q$ and an II about p and about q because the latter alternatives are "symmetric" to each other relative to $p \vee q$ (i.e., $\neg p \Rightarrow q$ and $\neg q \Rightarrow p$ if $p \vee q$ is true) whereas the former has no symmetric partners. This insight carries over to explain the IIs observed in (1): if *at least 5* has *exactly 5* and *more than 5* as alternatives, their symmetry relative to *at least 5* leads to IIs about them (Büring 2008; Kennedy 2013; Buccola and Haida 2017; see also Mayr 2013; Schwarz 2016).

(1) Ann owns at least 5 dogs
$\rightsquigarrow$ the speaker is ignorant about whether Ann owns exactly / more than 5 dogs

As discussed in Nouwen 2008, (1) contrasts with (2) and (3).

(2) Ann owns more than 4 dogs
no inferences

(3) Ann owns no fewer than 5 dogs
$\rightsquigarrow \neg$ Ann owns no fewer that n dogs (for all $n > 5$)

The following three ingredients provide a coherent explanation of most of this paradigm:

a. The UDM hypothesis: Natural language scales are always dense (Fox and Hackl 2006).
b. *At least* and *no fewer than* express $\geq$; *more than* expresses $>$ (Nouwen 2008).
c. Speaker beliefs about the matter of conversation are relevant (Fox 2016).

(a) explains why (2) doesn't license SIs (Fox and Hackl 2006). (a) + (b) explains why (3) contrasts with (2) in licensing SIs (Nouwen 2008). (a) + (b) + (c) explains why (2) contrasts with (1) in not licensing IIs (Buccola and Haida 2017).

Here, I want to add that we might also have an understanding of the remaining contrast, i.e., an understanding of why (3) contrasts with (1) in licensing a SI instead of IIs. The SI of (3) is derived by excluding the disjunction in (4a) (Nouwen 2008). The symmetric partner of (4a) is the proposition in (4b).

(4) a. $\bigvee\{[\lambda w.\max_d(\text{Ann owns } d\text{-many dogs in } w) \geq n] : n \in \mathbb{Q} \wedge n > 5\}$
= 'Ann owns more than 5 dogs'

b. $[\lambda w.\max_d(\text{Ann owns } d\text{-many dogs in } w) = 5]$
= 'Ann owns exactly 5 dogs'

Here is why (4b) might not be an alternative of (3). The alternatives of a sentence *S* are derived by replacing constituents of *S* with other linguistic material, in particular, with a lexical item or a subconstituent of a replacement target (Katzir 2007). A structure denoting (4b) cannot be derived from (3) if (i) *no fewer than* is not a constituent (Heim 1985; Abney 1987; Corver 1990; Hackl 2000), which precludes replacement with *exactly*, and/or if (ii) *fewer than 5* is a constituent so that (4b) could only be derived as follows:

(5) $[_{\alpha}$ *no* $[_{\beta}$ $[_{\gamma}$ *fewer than*] *5*]] $\xrightarrow{\alpha/\beta}$ $[_{\beta}$ $[_{\gamma}$ *fewer than*] *5*] $\overset{\gamma/exactly}{\longrightarrow}$ $[_{\beta}$ *exactly 5*]

The second replacement above is precluded by the independently motivated constraint in (6).

(6) Atomicity: No replacement target (γ) may be a subconstituent of a previous replacer (β) (Trinh and Haida 2015; Trinh 2018).

Although there is support for (i) and (ii), a complete account of the contrast between (1) and (3) requires showing that the coordination in (7), provided by an anonymous reviewer, involves unpronounced elements at the right edge of the conjuncts (i.e. right node raising).

(7) John owns either [[no more than] or [no fewer than]] 5 horses

References

Abney, Steven P. 1987. The English Noun Phrase in Its Sentential Aspect. Doctoral Dissertation, Massachusetts Institute of Technology.

Buccola, Brian, and Andreas Haida. 2017. Obligatory irrelevance and the computation of ignorance inferences. Ms. The Hebrew University of Jerusalem.

Büring, Daniel. 2008. The least *at least* can do. In *Proceedings of the 26th West Coast Conference on Formal Linguistics (WCCFL 26)*, ed. Charles B. Chang and Hannah J. Haynie, 114–120. Somerville, MA: Cascadilla Press.

Corver, Norbert. 1990. The Syntax of Left Branch Extractions. Doctoral Dissertation, Tilburg University.

Fox, Danny. 2016. On why ignorance might be part of literal meaning: Commentary on Marie-Christine Meyer. Handout from the MIT Workshop on Exhaustivity, Cambridge, MA.

Fox, Danny, and Martin Hackl. 2006. The universal density of measurement. *Linguistics and Philosophy* 29:537–586.

Hackl, Martin. 2000. Comparative Quantifiers. Doctoral Dissertation, Massachusetts Institute of Technology.

Heim, Irene. 1985. Notes on comparatives and related matters. Ms. University of Texas.

Katzir, Roni. 2007. Structurally-defined alternatives. *Linguistics and Philosophy* 30:669–690.

Kennedy, Chris. 2013. A scalar semantics for scalar readings of number words. In *From Grammar to Meaning: The spontaneous logicality of language*, ed. Ivano Caponigro and Carlo Cecchetto, 172–200. Cambridge: Cambridge University Press.

Mayr, Clemens. 2013. Implicatures of modified numerals. In *From Grammar to Meaning: The spontaneous logicality of language*, ed. Ivano Caponigro and Carlo Cecchetto, 139–171. Cambridge: Cambridge University Press.

Nouwen, Rick. 2008. Upper-bounded *no more*: The exhaustive interpretation of non-strict comparison. *Natural Language Semantics* 16:271–295.

Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:367–391.
Schwarz, Bernhard. 2016. Consistency preservation in quantity implicature: The case of *at least*. *Semantics and Pragmatics* 9:1–47.
Trinh, Tue. 2018. Keeping it simple. *Natural Language Semantics* 26:111–124.
Trinh, Tue, and Andreas Haida. 2015. Constraining the derivation of alternatives. *Natural Language Semantics* 23:249–270.

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Strengthened disjunction or non-classical conjunction?

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It has been claimed that the coordinators *manu* in Warlpiri (Bowler 2014), *or* in child English (Singh et al. 2016), and *ya* in Japanese (Sauerland et al. 2017) lexically express disjunction, but are obligatorily strengthened to a conjunctive meaning in upward-monotonic contexts by some version of double exhaustification (Fox 2007). Embedded contexts apparently reveal the disjunctive lexical meaning of these expressions: they yield a "neither reading" when embedded under negation (1a), behave like disjunctions in conditionals (1b), and in Warlpiri, are translated by disjunctions when occurring in *wh*-questions (1c).

(1) a. Kula=rna yunparnu manu wurntija jalangu. Lawa.
NEG=1SG.SUBJ sing.PST MANU dance.PST today nothing
'I didn't sing or dance today. I did nothing.'
(Warlpiri; Bowler 2014:139)

b. Tarou-wa kouhii ya koucha-o nom-eba yoru nemur-e-nai darou
Taro-TOP coffee YA tea-ACC drink-if night sleep-can-NEG infer
'If Taro drinks things like coffee or tea, he won't be able to sleep at night.'
(Japanese; Sauerland et al. 2017:113)

c. Ngana yanu Juka Juka-kurra manu Wakulpa-kurra?
who go.PST Juka Juka-ALL MANU Wakulpa-ALL
'Who has been to Juka Juka or Wakulpa?' (Warlpiri; Bowler 2014:141)

However, in all three contexts, the seemingly "disjunctive readings" also exist for an uncontroversially conjunctive coordinator, German *und* 'and'. (2a) can have a neither reading if *und* is unstressed. Given the assumption that conjunctions of any semantic category are plural expressions (Schmitt 2019), this is arguably an instance of the homogeneity inference triggered by plural expressions (Schwarzschild 1994). Murray (2017) already notes that a plurality-forming meaning for conjunction would, given homogeneity, derive (1a). But the analogy with conjunction also extends to (1b) and (1c): (2b) has a reading involving quantification over situations where Anna drinks coffee or alcohol, and can be true if she never drinks both. Križ 2015:39 discusses this reading for plural definites, relating it to homogeneity. (2c) can ask who Hans will marry, and who Fritz will marry, without necessarily asking who will be married to both of them. In each case, the relevant reading can be paraphrased using a disjunction.

(2) a. Heute hat Anna nicht getrunken und geraucht.
today has Anna not drunk and smoked
'Anna didn't drink and smoke today.'

b. Wenn Anna Alkohol und Kaffee trinkt, schläft sie oft schlecht.
if Anna alcohol and coffee drinks sleeps she often badly
'If Anna drinks alcohol and coffee, she often can't sleep well.'

c. Wen werden Hans und Fritz heiraten?
who.ACC will.3PL Hans and Fritz marry
'Who(m) will Hans and Fritz marry?'

Therefore the pattern in (1) does not unambiguously support an analysis in terms of disjunction and strengthening. The data are also compatible with an analysis that treats the coordinators under discussion as non-classical conjunctions, analogous to German *und*. Crucially, we cannot draw the opposite conclusion: (2) does not show that German *und* is underlyingly disjunctive, as *und*-conjunctions combine with non-distributive predicates (3). For (3), strengthening along the lines of Fox 2007 would fail because the subconstituent alternatives are semantically deviant.

(3) *Anna und Maria sind eine tolle Mannschaft*.
'Anna and Maria are a great team.'

Data with non-distributive predicates would thus be crucial to decide whether the observations in Bowler 2014, Singh et al. 2016, and Sauerland et al. 2017 support a strengthening mechanism deriving a conjunctive meaning for disjunction, or reflect independently attested non-classical properties of natural language conjunction.

References

Bowler, Margit. 2014. Conjunction and disjunction in a language without 'and'. In *Proceedings of the 24th Semantics and Linguistic Theory Conference (SALT 24)*, ed. Todd Snider, Sarah D'Antonio, and Mia Weigand, 137–155.

Fox, Danny. 2007. Free choice disjunction and the theory of scalar implicatures. In *Presupposition and Implicature in Compositional Semantics*, ed. Uli Sauerland and Penka Stateva, 71–120. Basingstoke: Palgrave Macmillan.

Križ, Manuel. 2015. Aspects of Homogeneity in the Semantics of Natural Language. Doctoral Dissertation, University of Vienna.

Murray, Sarah E. 2017. Complex connectives. In *Proceedings of the 27th Semantics and Linguistic Theory Conference (SALT 27)*, ed. Dan Burgdorf, Jacob Collard, Sireemas Maspong, and Brynhildur Stefánsdóttir, 655–679.

Sauerland, Uli, Ayaka Tamura, Masatoshi Koizumi, and John M. Tomlinson Jr. 2017. Tracking down disjunction. In *New Frontiers in Artificial Intelligence. JSAI-isAI 2015 Workshops, LENLS, JURISIN, AAA, HAT-MASH, TSDAA, ASD-HR, and SKL, Kanagawa, Japan, November 16–18, 2015. Revised Selected Papers*, ed. Mihoko Otake, Setsuya Kurahashi, Yuiko Ota, Ken Satoh, and Daisuke Bekki, 109–121. Cham: Springer.

Schmitt, Viola. 2019. Pluralities across categories and plural projection. *Semantics and Pragmatics* 12:17. 1–49.

Schwarzschild, Roger. 1994. Plurals, presuppositions, and the sources of distributivity. *Natural Language Semantics* 2:201–248.

Singh, Raj, Ken Wexler, Andrea Astle-Rahim, Deepthi Kamawar, and Danny Fox. 2016. Children interpret disjunction as conjunction: Consequences for theories of implicature and child development. *Natural Language Semantics* 24:305–352.

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Two observations about reconstruction

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This snippet addresses two observations about reconstruction. The background to the first observation is what Sauerland and Elbourne (2002) call "Barss's Generalization" (BG, going back to Barss 1986): if a moved category α is contained in a category β, and α moves out of β, then α can reconstruct into β only if α c-commands β on the surface. BG is particularly difficult to account for within the copy theory of movement (Chomsky 1995). Sauerland and Elbourne (2002) (see also Sauerland 1999) offer an elegant explanation for instances of BG where α undergoes A-movement. The idea is that A-movement applies in the syntax or at PF, but it never leaves a copy behind. Reconstruction of A-movement means that it has applied at PF. Crucially, this makes the prediction that there is no reconstruction in configurations where A-movement feeds syntactic Ā-movement. As noted in (Sauerland 1999:592), this prediction is challenged by examples such as (1), where *seem* may out-scope *many men*.

(1) How many men seemed to Kazuko to be downstairs? $\exists >$ *seem* ; *seem* $> \exists$

Sauerland (1999) suggests that (1) may have a derivation, where Ā-movement of *how many men* applies first, followed by A-movement of its lower (later deleted) copy at PF (2) (thereby deriving reconstruction).

(2) [$_{CP}$ How many men [$_{TP}$ ~~how many men~~ seemed to Kazuko [$_{TP}$ *how many men*$_{LF}$ ...]]]?
PF: [$_{TP}$ ~~how many men~~ seemed to Kazuko [$_{TP}$ *how many men*$_{LF}$ ...]]]?
syntax: [$_{CP}$ How many men [$_{TP}$ ~~how many men~~ seemed to Kazuko [$_{TP}$ *how many men*$_{LF}$ ...]]]?

While this fixes the problem with (1), examples like the one in (3) now pose a new challenge.

(3) [$_{CP}$ [Which picture of some boy] [$_{TP}$ t$'$ seems [$_{PP}$ to every girl] [$_{TP}$ t to be the best]]]?
$\exists > \forall$; ?*$\forall > \exists$

According to the judgments of three speakers we consulted, *every girl* in (3) cannot take scope over *some boy*. If true, the lack of reconstruction in (3) supports Sauerland and Elbourne's (2002) original theory, but it raises a problem for the fix suggested in Sauerland 1999, thus leaving the possibility of *many men* scoping below *seem* in (1) unexplained.

Turning to the second observation, it is well known that reconstruction for binding in raising contexts is possible, see (4).

(4) Which picture of himself$_1$ seems to John$_1$ to be the best?

Similar to the asymmetry between (1) and (3), scope reconstruction is out in Barss configurations, whereas reconstruction for binding is possible; see (5) (with α being extraposed and β undergoing remnant VP-topicalization).

(5) a. ... and [$_{VP}$ give every handout t_{PP}]$_2$ David did t_{VP} [$_{PP}$ to one of the students].
$\exists > \forall$; $*\forall > \exists$ (Sauerland 1999)

b. John promised to give books to them$_1$, and [$_{VP}$ give books to them$_2$ t_{PP}] he did t_{VP} [$_{PP}$ at each other's$_2$ birthdays]. (Pesetsky 1995)

This suggests that reconstruction for scope and binding require different mechanisms (see Cresti 1995; Rullmann 1995, contra Romero 1998; Sternefeld 2001; Sportiche 2006; Lechner 2007, 2019). While we have no idea how to approach the first observation, the second may find an explanation in the theory of "flat binding" proposed by Sauerland (2007), which is specifically designed to derive binding (but not scope) without c-command. Cases where scope and binding pattern alike must then be accidental.

References

Barss, Andrew. 1986. Chains and Anaphoric Dependence. Doctoral Dissertation, Massachusetts Institute of Technology.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Cresti, Diana. 1995. Extraction and reconstruction. *Natural Language Semantics* 3:79–122.

Lechner, Winfried. 2007. Scope and reconstruction. Guest lecture at Ling 325: Word Order and Scope, University of Connecticut, Storrs.

Lechner, Winfried. 2019. A calculus for reconstruction and anti-reconstruction. In *Reconstruction Effects in Relative Clauses*, ed. Mathias Schenner and Manfred Krifka, 113–145. Berlin: Akademie Verlag.

Pesetsky, David. 1995. *Zero Syntax: Experiencers and cascades*. Cambridge, MA: MIT Press.

Romero, Maribel. 1998. The correlation between scope reconstruction and connectivity effects. In *Proceedings of the Sixteenth West Coast Conference on Formal Linguistics (WCCFL 16)*, ed. Emily Curtis, James Lyle, and Gabriel Webster, 351–366. Stanford: CLSI Publications.

Rullmann, Hotze. 1995. Maximality in the Semantics of Wh-constructions. Doctoral Dissertation, Massachusetts Institute of Technology.

Sauerland, Uli. 1999. Scope reconstruction without reconstruction. In *Proceedings of the Seventeenth West Coast Conference on Formal Linguistics (WCCFL 17)*, ed. Kimary Shanin, Susan Blake, and Eun-Sook Kim, 582–596. Stanford: CSLI.

Sauerland, Uli. 2007. Flat binding: Binding without sequences. In *Interfaces + Recursion = Language?*, ed. Uli Sauerland and Hans-Martin Gärtner, 197–254. Berlin: Mouton de Gruyter.

Sauerland, Uli, and Paul Elbourne. 2002. Total reconstruction, PF movement, and derivational order. *Linguistic Inquiry* 33:283–319.

Sportiche, Dominique. 2006. Reconstruction, binding, and scope. In *The Blackwell Companion to Syntax, Vol. 4*, ed. Martin Everaert and Henk van Riemsdijk, 35–93. Malden, MA: Blackwell Publishing.

Sternefeld, Wolfgang. 2001. Semantic vs. syntactic reconstruction. In *Linguistic Form and its Computation*, ed. Hans Kamp, Antje Rossdeutscher, and Christian Rohrer, 145–182. Stanford: CSLI Publications.

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Modal adverbs and constraints on type-flexibility

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A traditional view holds that *and* is ambiguous between the meanings in (1), among others: ⟦and⟧ composes with truth-values, and ⟦and$_2$⟧ with quantifiers. The ambiguity is systematic (e.g. Keenan and Faltz 1978, 1985; Partee and Rooth 1983; Rooth 1985). In one conception, *and* is stored lexically as ⟦and⟧, while ⟦and$_2$⟧ is derived through a type-shifting mechanism. Jacobson (1999, 2014) puts forward a general rule — the Geach Rule — which can in principle apply to any operator. This snippet shows that the rule over-generates an unattested reading with modal adverbs.

(1) a. $[\![\text{and}]\!] = \lambda p_t.\lambda q_t.\ p \wedge q$
b. $[\![\text{and}_2]\!] = \lambda Q_{et,t}.\lambda Q'_{et,t}.\lambda f_{et}.\ [\![\text{and}]\!](Q(f))(Q'(f))$

Possibly precedes the *v*P in (2a), and a DP in (2b). Bogal-Allbritten (2013, 2014) observed that these are truth-conditionally distinct: unlike (2a), (2b) has an existential entailment that Mary climbed something. The contrast replicates in (3) with the DP being an existential quantifier.

(2) a. Mary possibly climbed the tallest mountain in Ireland (TMI).
"It is possible Mary climbed the TMI."
b. Mary climbed possibly the tallest mountain in Ireland.
"Mary climbed something, which possibly was the TMI."

(3) a. Mary possibly climbed something.
"It's possible Mary climbed something."
b. #Mary climbed possibly something.
"Mary climbed something, which possibly was something."

Possibly denotes (4), and in (2a) adjoins to the *v*P, as in (5). Percus (2000) observed that verbal predicates are interpreted relative to the most local intensional operator. (5) therefore conveys that for some w' epistemically-accessible from w_0, Mary climbed at w' the TMI at w' (if the DP is likewise interpreted relative to the modal). Rightly, no actual climbing is entailed.

(4) $[\![\text{possibly}]\!] = \lambda p_{st}.\lambda w.\ \exists w' \in \text{EPI}(w)\ [p(w')]$ (type <st,st>)

(5) [$_{vP}$ possibly [$_{vP}$ Mary climbed the tallest mountain in Ireland]]

In (2b), Bogal-Allbritten proposes that *climb* is outside the scope of *possibly*, and thus interpreted by default relative to the actual world, yielding an existential entailment. One route involves hidden syntax: *possibly* takes low propositional scope in a covert relative clause:

(6) [$_{vP}$ [$_{DP}$ ∃ [$_{RC}$ Op λ2 [possibly [t_2 <was> the TMI]]]] λ1 [$_{vP}$ Mary climbed t_1]]

Yet, with type-shifting, (2b) should allow another parse. The Geach Rule applied to an operator of type $< \alpha, \beta >$ is (7). Through the Geach Rule, ⟦possibly⟧ may shift to ⟦possibly$_2$⟧ in (8), which composes with a quantifier, analogously to ⟦and$_2$⟧. To illustrate, I here assume an intensional semantics where every type t in an extensional system is replaced by <s,t> so quantifiers are type <est,st>.

(7) $\mathbf{G}(\mathrm{Op}_{<\alpha,\beta>}) = \lambda \mathrm{F}_{<\gamma,\alpha>}.\lambda \mathrm{f}_{\gamma}.\ \mathrm{Op}(\mathrm{F}(\mathrm{f}))$

(8) $[\![\text{possibly}_2]\!] = \lambda \mathrm{Q}_{est,st}.\lambda \mathrm{f}_{est}.\ [\![\text{possibly}]\!](\mathrm{Q}(\mathrm{f}))$ (type <<est,st>,<est,st>>)

Now, *possibly* composes directly with the DP, in this case itself lifted to quantifier type in (9) (Partee 1987). *Possibly DP* is a new quantifier, and scopes at the *v*P in (10). Per (11), *climb* is again in the semantic scope of *possibly*, and a meaning equivalent to (5) results. If this derivation were attested, (2b), like (2a), would have a parse with no existential entailment.

(9) $[\![\text{the TMI}^{\uparrow}]\!] = \lambda \mathrm{f}_{est}.\lambda \mathrm{w}.\ \mathrm{f}(\iota \mathrm{x}\ [\mathrm{x} \text{ is the TMI in w}])(\mathrm{w})$

(10) $[_{vP}\ [_{DP}\ \text{possibly}_2\ \text{the tallest mountain in Ireland}]\ \lambda 1\ \underline{[_{vP}\ \text{Mary climbed } \mathrm{t}_1]}]$

(11) a. $[\![\text{possibly}_2]\!]([\![\text{the TMI}^{\uparrow}]\!])(\lambda \mathrm{x}.\lambda \mathrm{w}.\ \text{Mary climbed x in w})$
b. $= [\![\text{possibly}]\!](\lambda \mathrm{w}.\ \text{Mary climbed in w } \iota \mathrm{x}\ [\mathrm{x} \text{ is the TMI in w}])$

Why is ⟦possibly$_2$⟧ not freely available? If the Geach shift exists in grammar, further constraints are required. A flexible semantics may, for instance, be coupled with a syntactic constraint to block *possibly* from adjoining to a DP. On the other hand, the puzzle might suggest that type-flexibility is *not* available (as in e.g. Heim 2017, Sauerland 2018, Hirsch 2017, 2018; see also Schein 2017 on re-analysis of *and*). Heim and Sauerland formulate economy principles which effectively disallow Geach because it introduces λ-binders, but no new contentful predicate. Then, *possibly* is rigidly interpreted with its lexical meaning, ⟦possibly⟧, and the data follow from the semantics.

References

Bogal-Allbritten, Elizabeth. 2013. Modification of DPs by epistemic modal adverbs. In *Proceedings of the 19th Amsterdam Colloquium*, ed. Maria Aloni, Michael Franke, and Floris Roelofsen, 51–58. Amsterdam: ILLC, University of Amsterdam.

Bogal-Allbritten, Elizabeth. 2014. Interpreting DP-modifying modal adverbs. Talk at the 24th Semantics and Linguistic Theory Conference (SALT 24), New York University.

Heim, Irene. 2017. Constraints on meaning. Talk at LF Reading Group, Massachusetts Institute of Technology.

Hirsch, Aron. 2017. An Inflexible Semantics for Cross-categorial Operators. Doctoral Dissertation, Massachusetts Institute of Technology.

Hirsch, Aron. 2018. The semantic inflexibility hypothesis. Talk at the Ambigo Workshop, University of Göttingen.

Jacobson, Pauline. 1999. Towards a variable free semantics. *Linguistics and Philosophy* 22(2):117–184.

Jacobson, Pauline. 2014. *Compositional Semantics: An introduction to the syntax/semantics interface*. Oxford: Oxford University Press.
Keenan, Edward, and Leonard Faltz. 1978. Logical types for natural language. Technical report, University of California, Los Angeles.
Keenan, Edward, and Leonard Faltz. 1985. *Boolean Semantics for Natural Language*. Dordrecht: Reidel.
Partee, Barbara. 1987. Noun phrase interpretation and type-shifting principles. In *Meaning, Use, and Interpretation of Language*, ed. Jeroen Groenendijk, Dick De Jongh, and Martin Stokhof, 115–143. Dordrecht: Foris Publications.
Partee, Barbara, and Mats Rooth. 1983. Generalized conjunction and type ambiguity. In *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, ed. Rainer Bäuerle, Christoph Schwarze, and Arnim von Stechow, 361–383. Berlin: Foris Publications.
Percus, Orin. 2000. Constraints on some other variables in syntax. *Natural Language Semantics* 8(3):173–229.
Rooth, Mats. 1985. Association with Focus. Doctoral Dissertation, University of Massachusetts, Amherst.
Sauerland, Uli. 2018. The thought uniqueness hypothesis. In *Proceedings of 28th Semantics and Linguistic Theory Conference (SALT 28)*, ed. Sireemas Maspong, Brynhildur Stefánsdóttir, Katherine Blake, and Forrest Davis, 271–288.
Schein, Barry. 2017. *And: Conjunction reduction redux*. Cambridge, MA: MIT Press.

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On variable agreement and scope reconstruction in Russian

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Sauerland and Elbourne (2002) (S&E) famously discovered cases where group nouns that may trigger singular or plural number agreement in some English dialects (British English) have different scopal behavior. They have shown that group nouns cannot undergo scope reconstruction (at least with some raising predicates like *likely*) when they trigger plural agreement on the verb. When they trigger singular agreement, they are free to reconstruct, as in (1), which is S&E's (14).

(1) a. A Northern team is likely to be in the final. *a* ≫ *likely* ; *likely* ≫ *a*
b. A Northern team are likely to be in the final. *a* ≫ *likely* ; **likely* ≫ *a*

In Russian, group nouns like *gruppa* 'group', *komitet* 'committee', *komanda* 'team' may only trigger singular agreement. However, there is a class of noun phrases with numerals and some other quantifiers that can either trigger plural agreement or surface with the default neuter singular morphology on the verb (variable agreement QPs, or VAQPs). And just as it is the case with group nouns in British English, it is the plural variant that limits scope possibilities: in Russian these nouns preclude reconstruction.

In (2b), the VAQP with plural agreement necessarily outscopes clausal negation, in contrast to the non-agreeing variant (2a), where scope reconstruction below negation is possible:

(2) a. Bol'še pjati pisem do adresata ne došl-o
more.than five letters to addressee not reached-N.SG
'There were more than 5 letters that didn't reach the addressee.'
more than 5 ≫ *not*
'At most 5 letters reached the addressee.'
not ≫ *more than 5*

b. Bol'še pjati pisem do adresata ne došl-i
more.than five letters to addressee not reached-PL
'There were more than 5 letters that didn't reach the addressee.'
more than 5 ≫ *not* ; **not* ≫ *more than 5*

In this respect Russian may seem not that different from English. As a reviewer points out, negation in British English precludes reconstruction of plural-agreeing group DPs, just as it does in Russian (which is corroborated by examples with NPIs in S&E's (32)). But apparently, there is no consensus about the judgements, with Thoms (2013) reporting both scope possibilities to be available for plural-agreeing group DPs and negation in British English.

Russian facts resist an analysis along the lines of Sauerland 2004, where anti-reconstruction properties are derived from the definiteness of plural-agreeing group nouns. Russian plural-agree-

ing VAQPs are not necessarily definite and may take scope below some raising predicates like the modal *dolžen* 'must' in its deontic use (though in the epistemic uses of *dolžen*, the scope pattern seems to be different, with plural-agreeing VAQPs only scoping above the modal):

(3) Po protokolu, s takoj travmoj xotja by dva vrača dolžn-y byl-i /
according.to protocol with this injury XOTJA BY two doctors must-PL be.PAST-PL /
?dolžn-o byl-o ego osmotret'.
must-N.SG be.PAST-N.SG him examine
'According to the protocol, with an injury of this kind, at least two doctors must examine him.'

Xotja by dva vrača ('at least two doctors') in (3) is clearly not a definite, with *xotja by* 'at least', a modifier with special licensing conditions, forcing the scope below the modal.

The environments where the plural agreement has an anti-reconstrution effect may be different in British English and Russian. However, the two languages are still strikingly similar: it is always plural agreement that precludes reconstruction. Moreover, the plural features triggering this reconstruction-precluding agreement could be viewed as optional in both languages: in Russian, it is an optional feature on a numberless QP; in British English, it might be an optional feature on top of a singular DP. Whether a unified account that relates these properties is feasible remains to be seen.

References

Sauerland, Uli. 2004. 'A team', definitely. *Snippets* 9:11–12.

Sauerland, Uli, and Paul Elbourne. 2002. Total reconstruction, PF-movement, and derivational order. *Linguistic Inquiry* 33:283–319.

Thoms, Gary. 2013. Anti-reconstruction, anti-agreement, and the dynamics of A-movement. Talk at Generative Linguistics in the Old World 36 (GLOW 36), Lund.

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The past is rewritten

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In a snippet from 2002 entitled *The present tense is vacuous*, Uli Sauerland argues that the present tense is vacuous, whereas the past presupposes that t is before the time of utterance. With this, Sauerland (2002) captures the contrast in (1) by accepting the semantics that Abusch (1997) gives to past morphology, but rewriting the semantics of the present tense.

(1) a. Every Tuesday this month, I fast.
b. Every Tuesday this month, I fasted.

(2) Abusch 1997
PRES: presupposes that t isn't before the time of utterance.
PAST: presupposes that t is before the time of utterance.

(3) Sauerland 2002
PRES: no presupposition (but, anti-presupposition).
PAST: presupposes that t is before the time of utterance.

This snippet seeks to argue that the semantics of past morphology in (2) and (3) needs to be rewritten in order to also capture the modal readings of the past in conditionals and futurates – namely the unlikelihood/falsity of the antecedents in (4b)/(4c), in contrast to (4a), and the uncertainty of the future reading in (5b), in contrast to (5a). Basically, while in the above, PAST is defined to vary over times (t), it needs to be able to vary over worlds (w), as well.

(4) a. If he fasts tomorrow, he will ...
b. If he fasted right now / were to fast tomorrow, he would ...
c. If he had fasted tomorrow (instead of yesterday), he would have ...

(5) a. He is fasting tomorrow.
b. He was fasting tomorrow, #(right?)

Following the idea put forward in Iatridou 2000 that the past can be "fake", but maintaining the idea that the semantics of the past needs to be unified to capture both real and fake readings, the following definition is proposed.

(6) PAST: presupposes that $\langle w,t\rangle \neq \langle w^0,t^0\rangle$

This captures the range of meanings associated with the past. Its before-now usage, its futurate usage, and its conditional usage can be straightforwardly achieved by changing the value of t^0, w^0, or both.

It is worth noting that conditional data, as in (4), suggest that the scale reflects a three way distinction: conditionals marked with zero-past (i.e. indicatives), with one-past (singly marked

subjunctives), and with two-pasts (doubly marked subjunctives, i.e. true counterfactuals). Does this mean that the indicatives are unmarked? The answer might have been easy if we had only a two way distinction – we could then find arguments for having one be the anti-presupposition of the other (cf. Ippolito 2003; Leahy 2011). This will not be straightforward for proponents of a pragmatic theory of presupposition because as it stands, it would fail to incorporate singly marked conditionals. One cannot make both the falsity inference of doubly marked conditionals in (4c) and the unlikelihood inference of singly marked conditionals in (4b) anti-presuppositions of one and the same indicative presupposition in (4a).

Having the past presuppose that the world-time pair is different from the world-time pair consisting of the actual world and time of speech ($\langle w,t\rangle \neq \langle w^0,t^0\rangle$) means that in its presence one evaluates the proposition against a set comprising of world-time pairs that are one step further away from those that contain the real world and actual time. Applying a second past presupposes that one has to go yet another step further. In its absence, however, a proposition is able to reach within the set that contains $\langle w^0,t^0\rangle$. This means that it takes two steps to get from an indicative to a counterfactual (in the strong sense): the first brings you to situations that are unlikely (4b), the second to situations that are excluded (4c).

This analysis provides a unified account of past morphology, but also shows that we can capture the fact that past morphology in conditionals is able to do exactly what dedicated counterfactual markers do – namely to exclude the real world from the context set without going back to the real past.

References

Abusch, Dorit. 1997. Sequence of tense and temporal de re. *Linguistics and Philosophy* 20:1–50.

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic Inquiry* 31:231–270.

Ippolito, Michaela. 2003. Presuppositions and implicatures in counterfactuals. *Natural Language Semantics* 11:145–186.

Leahy, Brian. 2011. Presuppositions and antipresuppositions in conditionals. In *Proceedings of the 21st Semantics and Linguistic Theory Conference (SALT 21)*, ed. Neil Ashton, Anca Chereches, and David Lutz, 257–274.

Sauerland, Uli. 2002. The present tense is vacuous. *Snippets* 6:12–13.

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Persian *ezafe* and proportional quantifiers

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In Persian, nominal complement relations are marked by ezafe, a clitic -(*y*)*e*. It occurs on the head in noun-modifier/complement constructions and on prepositions derived from nouns (cf. Ghomeshi 1997).

(1) a. manzel-e Maryam
house-EZ Maryam
'Maryam's house'

b. taxrib-e shahr
destruction-EZ city
'destruction of the city'

c. dor-e estaxr
around-EZ pool
'around the pool'

Ezafe also is found with certain D-quantifiers (cf. Toosarvandani and Nasser 2017). One generalization not made by these authors is that it is restricted to, and required for, proportional quantifiers. Ezafe is thus obligatory for (2) and ruled out for (3).

(2) Hame-ye / bishtar-e / yek dovom-e / shast darsad-e ketab-ha rooy-e miz hastand.
all-EZ / most-EZ / one half-EZ / sixty percent-EZ book-PL on-EZ table are.PL
'All / most /one half of the / sixty percent of the books are on the table.'

(3) a. Do-ta mard vared shodand.
two-CL man enter did.3PL
'Two men entered.'

b. Bazi / tedadi / kheily / chand-ta ay daneshjoo-ha hazer hastand.
some / several / many / few-CL of student-PL present are.3PL
'Some / several / many / few of the students are present.'

This suggests that proportional quantifiers are heads followed by complements, whereas non-proportional quantifiers are specifiers. We propose the structures in (4).

(4) a. $[_{DP}\ [[_{D^0}$ hame-ye] $[_{NP}$ ketab-ha]]] proportional, 'all'

b. $[_{DP}$ yek $[[_{D^0}$ dovom-e] $[_{NP}$ ketab-ha]]] proportional, 'one half'

c. $[_{NP}$ yek/do-ta $[_{N^0}$ mard]] non-proportional, 'one/two'

d. $[_{NP}$ bazi $[[_{N^0}$ ∅] $[_{PP}$ az daneshjoo-ha]]] non-proportional, 'some'

We propose that proportional quantifiers restrict a discourse referent d the size of which is measured by a proportion of the extension of the noun, as in (5a). Hence the nominal N must be a complement of the quantifier, predicting that ezafe is required. For numeral and partitive constructions, the size restriction is independent of the head noun, (5b) and (5c), predicting the impossibility of ezafe. Quantifiers in (3b) occur in partitive constructions but are not proportional, as the selected size of d does not depend on the extension of the partitive nominal.

(5) a. $[\![[_{D^0}\ \text{dovom}]]\!] = \lambda N \lambda n \left[N(d) \wedge \#(d) = n \times \frac{1}{2}\#(N)\right]$
b. $[\![[_{N^0}\ \text{mard}]]\!] = \lambda n[\text{man}(d) \wedge \#(d) = n]$
c. $[\![[_{N^0}\ \emptyset]]\!] = \lambda n[\#(d) = n]$
$[\![[_{PP}\ \text{az daneshjoo-ha}]]\!] = [d \sqsubseteq \text{the students}]$

This representation contradicts classical Generalized Quantifier theory, (Barwise and Cooper 1981), which assumes that all quantified DPs consist of a determiner that takes a noun meaning as arguments. According to our data, only proportional determiners do.

The following example is an apparent exception regarding ezafe placement:

(6) Shast darsad zan dar in company estekhdam shodand.
sixty percent woman in this company employment got.3PL
'Sixty percent of the employees in this company are women.'

But here the noun *zan* is not used to identify a proportion. It is a non-conservative interpretation, as identified by Ahn and Sauerland (2017); for mechanisms of semantic interpretation, see the discussion there.

Another apparent exception is *har*, which appears to be a universal quantifier:

(7) Har sib-i ra ke didam, bardashtam.
every apple-IDF OBJ that saw.1SG took.1SG
'I took each apple that I saw.'

But *har* differs from proportional quantifiers: it is strictly distributive, requires a noun that is marked as indefinite (possibly plural, cf. *har do-ta sib* 'every/each two apples'), and its discourse referent cannot be picked up in subsequent sentences except in cases of modal subordination. We propose that *har* indicates the presence of a universal quantifier whose discourse referent carries the presupposition expressed by the noun (8).

(8) $[\![[[_{DP}\ [[_{D^0}\ \text{har}]\ [_{NP}\ \text{yek sib/sib-i}]]]\ \text{ra bardashtam}]]\!]$
$= \forall d : \text{apple}(d)[\text{speaker took } d]$

Notice that non-universal proportional quantifiers such as "most" could not be expressed in this way. Hence, we suggest that at least in Persian, distributive universal quantifiers and truly proportional quantifiers are represented differently.

References

Ahn, Dorothy, and Uli Sauerland. 2017. Measure constructions with relative measures: Towards a syntax of non-conservative construals. *The Linguistic Review* 34:215–248.

Barwise, Jon, and Robin Cooper. 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy* 4:159–219.
Ghomeshi, Jila. 1997. Non-projecting nouns and the *ezafe* construction in Persian. *Natural Language and Linguistic Theory* 15:729–788.
Toosarvandani, Maziar, and Hayadeh Nasser. 2017. Quantification in Persian. In *Handbook of Quantifiers in Natural Language, Vol. 2*, ed. Denis Paperno and Edward L. Keenan, 665–696. Springer Netherlands.

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Maximize Presupposition! and presupposition satisfaction

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Percus (2010) discusses a challenge for classical formulations of *Maximize Presupposition!* (MP): a sentence like (1a) is infelicitous in the suggested context even though the stronger presupposition of its competitor, (1b), is not assumed to be true.

(1) *Context: As a rule, Uli takes two students on at a time. The interlocutors have not established whether Uli currently has any students.*
   a. #Uli invited all his students to the party.
   b. Uli invited both his students to the party.

Percus (2010) suggest reformulating MP by weakening the condition on presupposition satisfaction as follows: a sentence S is infelicitous at a context c if S has a presuppositional competitor S' that is contextually entailed by S. This suggestion, taken up in recent work like Anvari 2018, accounts for the case above while preserving the classical MP-cases.

I note that the empirical success of this move depends on one's assumptions regarding how MP is evaluated. To see this, consider first the well-known MP effects in (2):

(2) a. Uli arrived at noon, and Kazuko {#believes/✓knows} it.
   b. Every professor with exactly two students told {#all/✓both} his students to quit.

One way to account for these data is to let MP be evaluated globally and assume that the comparison mechanisms apply at the level of lexical items (Percus, 2006). While this account of (2) is compatible with the above account of (1), note that combining them leads however to undesirable results for cases like (3): their combination incorrectly predicts the presuppositionally weaker sentences in (3) to be infelicitous – locally, the same lexical items are competing, and globally, these sentences contextually entail their presuppositional competitors.

(3) a. Kazuko {✓believes/✓knows} that Uli arrived, and indeed Uli arrived at noon.
   b. Every student who talked to {✓all/✓both} his German advisors has only two advisors.

These observations leave us with two options. One is to maintain the above account of (1) but reject the possibility that MP is ever checked globally. This option would be compatible with the proposal in Singh 2011 that MP is to be evaluated locally, i.e. relative to local contexts. The resulting combination would account for cases like (1) and capture the contrasts between (2) and (3) on the assumption that local contexts in conjunctions and universal sentences are asymmetric.

Another option is to offer an alternative analysis of (1) that maintains the classical MP-condition on presupposition satisfaction and thus remains compatible with a global or local account of the contrasts in (2) and (3). This analysis could start from the observation that (1a) and (1b) both carry an informative presupposition (noted as p and p^+) in the global context c, as schematized below:

(4) $c \subseteq$ *If Uli has any student, he has exactly two.*

a. Uli invited all his students to the party.
$p :=$ *Uli has students.*

b. Uli invited both his students to the party.
$p^+ :=$ *Uli has exactly two students.*

FACT: For any $c' \subseteq c$, if $c' \subseteq p$, then $c' \subseteq p^+$ by Modus Ponens

For (4a) to be felicitous, two requirements must thus be met: (i) for presupposition satisfaction, c must be adjusted to obtain a context c' such that $c' \subseteq p$, and (ii) by MP, the context to which (4a) is added should not entail p^+. However, these requirements can never be met together in this case: if (i) is met (i.e., $c' \subseteq p$), then (ii) isn't, since $c' \subseteq p^+$, and so infelicity ensues by MP; and if (ii) is met (e.g., $c' = c$), then (i) isn't, since $c \not\subseteq p$, and so infelicity ensues due to presupposition failure. If this explanation is on the right track, then the infelicity of (1a) could simply reflect the interplay of two pressures already familiar to us, the pressure that the context be or become one in which the presuppositions encoded in the semantics are satisfied and the extra pressure from MP that those presuppositions be as strong as possible in that (possibly adjusted) context.

References

Anvari, Amir. 2018. Logical integrity. *Semantics and Linguistic Theory* 28:711–726.

Percus, Orin. 2006. Anti-presuppositions. In *Theoretical and Empirical Studies of Reference and Anaphora: Toward the establishment of generative grammar as an empirical science*, ed. A. Ueyama, 52–73. Report of the Grant-in-Aid for Scientific Research (B), Project No. 15320052, Japan Society for the Promotion of Science.

Percus, Orin. 2010. Antipresuppositions revisited. Talk at CRISCO, Université de Caen.

Singh, Raj. 2011. Maximize Presupposition! and local contexts. *Natural Language Semantics* 19:149–168.

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Restricting the English past tense

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Kratzer (1998) argues for a pronominal analysis of tense (see also Partee 1973; Sauerland 2002), but she also identifies behaviours of the English past which seem unexpected under the pronominal account. Consider (1), for example.

(1) [You are looking at churches in Italy. There is no previous discourse when the following question comes up:]
A: Who built this church?
B: Borromini built this church. (Kratzer 1998)

The puzzle is that this context provides no salient reference time (RT) to which a temporal pronoun could refer, yet the past tense is acceptable. Kratzer proposes that the English simple past form represents either a pronominal past tense, or a combination of present tense and perfect aspect. She supports this proposal through a comparison with German, in which the simple past is infelicitous in (1), as expected for an unambiguously pronominal tense.

Explaining the acceptability of (1) via a present perfect reading of the past tense form runs into the complication that the English present perfect is itself infelicitous in (1), likely due to the non-repeatability of the event (McCawley 1971). Here we reinterpret the ambiguity of the English past as being between *pronominal* and *existentially quantified* tense (see Partee 1984; Ogihara 1996; von Stechow 2009 on existential tense; and Grønn and von Stechow 2016 for this ambiguity). (1) is then acceptable under the existential reading, which merely asserts the existence of some prior RT.

So far, so good. However, notice that the English simple past is not always acceptable in contexts without salient RTs. This is shown in (2), where the # applies globally to the conversation.

(2) #[I am curious which of my friends has read *Emma* at some point in their life.]
A: Who read *Emma*?
B: Julia read *Emma*.

A salient RT renders this dialogue felicitous:

(3) [There has been confusion about what our book club's chosen book was this month. Some of us read *Emma* and some read *Persuasion*.]
A: Who read *Emma*?
B: Julia read *Emma*.

The contrast between (2) and (3) would follow if the English past were purely pronominal after all – but that would leave (1) unexplained.

We propose the following generalization. The English past on its existential reading must have non-vacuous domain restriction. According to this, the past tense in (3) can be analyzed as existentially quantifying over times within the past month. In contrast, (2) is ruled out because there is no meaningful domain restriction: the issue here is whether the sentential subject has read *Emma* at some point in their entire lifespan. ((2) is a typical experiential context, well-known for being suited to the present perfect.)

The past tense's required domain restriction can be provided via a specific event, whose run time crucially need not be known. In (1), the speakers may have no idea *when* the church was built, but there was clearly at some point a particular building event of that church. Knowledge of a specific event also licenses the reading dialogue, as shown in (4). The phenomenon generalizes to other predicates, as shown for example in (5).

(4) [I bought a brand-new copy of *Emma* and now I see the pages are creased. I ask my family:]
A: Who read *Emma*?
B: Julia read *Emma*.

(5) Who littered?
in the context: I am curious about who has ever done anti-social things in a forest.
ok in the context: I am walking in the forest and notice a piece of litter on the ground.

The ambiguity we propose here for the English past tense may be overtly spelled out cross-linguistically; there may be languages which overtly distinguish pronominal from existential tenses (see e.g., Rieger 2011 on Swahili; Chen et al. 2019 on Atayal and Javanese).

References

Chen, Sihwei, Jozina Vander Klok, Lisa Matthewson, and Hotze Rullmann. 2019. The 'experiential' as an existential past: Evidence from Javanese and Atayal. Ms. University of British Columbia.

Grønn, Atle, and Arnim von Stechow. 2016. Tense. In *The Cambridge Handbook of Formal Semantics*, ed. Maria Aloni and Paul Dekker, 313–341. Cambridge: Cambridge University Press.

Kratzer, Angelika. 1998. More structural analogies between pronouns and tenses. In *Proceedings from Semantics and Linguistic Theory VIII (SALT 8)*, ed. Devon Strolovitch and Aaron Lawson. Ithaca, NY: Cornell University.

McCawley, James D. 1971. Tense and time reference in English. In *Studies in Linguistic Semantics*, ed. D. Terence Langendoen and Charles J. Fillmore, 97–113. New York: Holt, Rinehart, and Winston.

Ogihara, Toshiyuki. 1996. *Tense, Attitudes, and Scope*. Dordrecht: Kluwer.

Partee, Barbara H. 1973. Some structural analogies between tenses and pronouns in English. *Journal of Philosophy* 18:601–609.

Partee, Barbara H. 1984. Nominal and temporal anaphora. *Linguistics and Philosophy* 7:243–286.

Rieger, Dorothee. 2011. Swahili as a tense prominent language. *Swahili Forum* 18:114–134.

Sauerland, Uli. 2002. The present tense is vacuous. *Snippets* 6:12–13.

von Stechow, Arnim. 2009. Tenses in compositional semantics. In *The Expression of Time*, ed. Wolfgang Klein and Ping Li, 129–166. Berlin: Mouton de Gruyter.

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On a seemingly nonexistent cumulative reading

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The sentence in (1) is true if every kid hugged some mother and every mother was hugged by some kid, where the hugged ones need not stand in the mother-of relation to the huggers. Such truth-conditions are called *cumulative*.

(1) The kids hugged the mothers.

The plural DPs denote the maximal pluralities containing all the relevant atomic individuals, i.e., the kids or the mothers (Link 1983). To apply the relation denoted by *hug* to such pluralities, assume that (1) has an LF like (2a) where a **-operator is attached to the verb (Krifka 1986; Schwarzschild 1996; Sauerland 1998; Sternefeld 1998; Beck and Sauerland 2000) with a semantics as in (2b). Here lower case variables stand for atomic individuals and capital ones for pluralities. This yields precisely the cumulative truth-conditions discussed above.

(2) a. [the kids [**hugged [the mothers]]]

b. $[\![\textbf{**}]\!] = \lambda f_{\langle e,\langle e,t\rangle\rangle} . \lambda Y_e . \lambda X_e . \forall x \preceq X . \exists y \preceq Y [f(y)(x) = 1] \wedge \forall y \preceq Y . \exists x \preceq X [f(y)(x) = 1]$

Consider next the discourse in (3). A's utterance does not have the cumulative truth-conditions of (1). If it did, B's reply should be infelicitous as it would contradict A's utterance and assert that the kids did not hug their own mothers. Rather, (3A) is obligatorily reflexive.

(3) A: The kids hugged their mothers.
B: No, they hugged each other's mothers.

However, with an LF like (4) such a cumulative reading could obtain for (3A). On the assumption that $[\![\textbf{pro}_3]\!] = [\![\textbf{the kids}]\!]$, with the kids and the mothers standing in a one-to-one relation, $[\![\textbf{the mothers of pro}_3]\!] = [\![\textbf{the mothers}]\!]$. Winter (2000) already points out this prediction but does not address the question of whether it is empirically supported.

(4) [the kids [**hugged [the mothers of pro_3]]]

Uli Sauerland (p.c.) reports that the addition of the numerals in (5) makes a cumulative interpretation relatively possible compared to (3A). (A reviewer wonders whether *their* in (3A) is actually *their own* making it obligatorily reflexive. The cumulative interpretation of (5) suggests otherwise. Notice that *The kids hugged their own three mothers* is not equivalent to (5).)

(5) The three kids hugged their three mothers.

This might suggest that what is going on with (3A) is some kind of pragmatic blocking. For (3A), the reciprocal alternative in (6) exists, which is only true in case each kid hugged a mother different from their own. One might thus think that the possibility of (6) blocks the use of (3A) in such a reciprocal situation, effectively limiting (3A) to reflexive situations.

(6) The kids hugged each other's mothers.

For (5), no such alternative exists. In particular, (7) does not have the reciprocal interpretation made true by the cumulative interpretation of (5). Unlike (5), (7) requires that every kid has three mothers.

(7) The three kids hugged each other's three mothers.

A number of questions remain. (Here I also thank two reviewers for their suggestions.) First, I predict (3A) to be true in a situation where every kid hugged her own mother and some kids hugged other mothers as well, as long as one did not. Is this supported? Second, it is not obvious that (6) can be an alternative to (3A). Taken at face value, the former is more complex than the latter, in conflict with the structural theory of alternatives in Katzir 2007. The answer somewhat depends on the representation for *their*. Third and relatedly, one would then like to know why (6) is not an alternative to (1).

References

Beck, Sigrid, and Uli Sauerland. 2000. Cumulation is needed: A reply to Winter (2000). *Natural Language Semantics* 8:349–371.

Katzir, Roni. 2007. Structurally-defined alternatives. *Linguistics and Philosophy* 30:669–690.

Krifka, Manfred. 1986. Nominalreferenz und Zeitkonstitution: Zur Semantik von Massentermen, Pluraltermen und Aspektklassen. Doctoral Dissertation, University of Munich.

Link, Godehard. 1983. The logical analysis of plurals and mass terms: A lattice-theoretical approach. In *Meaning, Use, and Interpretation of Language*, ed. Rainer Bäuerle, Christoph Schwarze, and Arnim von Stechow, 302–323. Berlin, New York: de Gruyter.

Sauerland, Uli. 1998. Plurals, derived predicates, and reciprocals. *MIT Working Papers in Linguistics* 25:177–204.

Schwarzschild, Roger. 1996. *Pluralities*. Dordrecht: Kluwer Academic Publishers.

Sternefeld, Wolfgang. 1998. Reciprocity and cumulative predication. *Natural Language Semantics* 6:303–337.

Winter, Yoad. 2000. Distributivity and dependency. *Natural Language Semantics* 8:27–69.

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Scalar Implicatures in complex contexts

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Sauerland (2004) started a very fruitful line of research that still produces controversy and puzzling data – an ideal outcome. Among the tasks this landmark paper put on the agenda was an adequate theory of alternatives. The challenge was most successfully taken up by Katzir (2007), who proposed a syntactic algorithm generating exactly those alternatives which can yield implicatures of ϕ – simply put, all ψ's which are at most as complex as ϕ:

(1) $\psi \in \text{ALT}(\phi)$ iff ψ can be derived from ϕ by (successively) replacing sub-constituents in ϕ with (i) elements from the lexicon, (ii) sub-constituents of ϕ, and/or (iii) constituents used in previous context

But problems remain even for this most successful attempt to meet Sauerland's challenge.

First, Matsumoto (1995) showed that we need to allow context to contribute alternatives even if those are more complex than ϕ, and Katzir's (iii) indeed allows for this. Together with a consistency and a non-arbitrariness constraint (e.g. Sauerland 2004; Fox 2007), this predicts that (2b) cannot have the *but-not-all* implicature: its alternatives ALTcontain both *John read all of the books* (as per (i)) and *John read some but not all of the books* (as per (iii)). Negating both is inconsistent, and there is no non-arbitrary way of choosing just one. Assuming that all mentioned constraints are identical for *only* (Fox and Katzir 2011), the *but-not-all* reading in (2c) is likewise out:

(2) a. Sue read some but not all of the books.
b. # John read SOME of the books. ($\nrightarrow$ not all)
c. # John only read SOME of the books. ($\nrightarrow$ not all)

What hasn't been noted is that these readings are actually available – one just needs to add an additive particle (and the sentences also become felicitous):

(3) a. Mary read some but not all of the books
b. John also read SOME of the books ($\rightarrow$ not all)
c. John also only read SOME of the books ($\rightarrow$ not all)

Since the presence of this particle is not predicted to have any impact on ALT, this is unexplained. The following minimal pair makes a similar point:

(4) a. Mary dislikes cats but she likes pandas.
b. John only likes pandas. ($\rightarrow \neg$(John dislikes cats))

(5) a. Mary dislikes cats but she likes pandas.
b. John also only likes pandas. ($\rightarrow \neg$(John likes cats))

Second, Fox and Katzir (2011) offer a quick fix to allow the implicature in (3b) after all (though they don't mention the additive particle): the stipulation that relevant, contextually-provided alternatives (as per (iii)) can be ignored while lexically-provided ones (as per (i)) cannot. This predicts that implicatures based on the latter should be more robust than those based on the former. But once we look past the very robust (lexical) *some - all* scale (van Tiel et al., 2016), this makes wrong predictions:

(6) a. John's soup was tasty.
b. Mary's soup was warm. ($\rightarrow$ not tasty)

The more robust implicature is the one based on the contextually-given alternative (*tasty*), while the lexically-given alternative can be ignored (the soup may or may not have been hot).

Third, Trinh and Haida (2015) propose that (iii) needs to be further restricted, such that contextually-given constituents cannot undergo syntactic operations before forming an alternative for implicature computation or *only*. They argue that this (together with a non-arbitrariness condition, as before) correctly allows only *Mary didn't smoke* to contribute to the meaning of (7b):

(7) a. John went for a run and didn't smoke.
b. Mary only went for a run. ($\rightarrow \neg$(Mary didn't smoke))

However, the following minimal pair shows precisely the opposite pattern (fixing the confound observed in (3a) by adding the missing additive particle):

(8) a. John went for a drink but didn't smoke.
b. Mary also only went for a drink. ($\rightarrow \neg$(Mary smoked))

As these three cases show, Sauerland's challenge still stands.

References

Fox, Danny. 2007. Free Choice and the theory of scalar implicatures. In *Presupposition and Implicature in Compositional Semantics*, ed. Uli Sauerland and Penka Stateva, 71–120. New York: Palgrave Macmillan.

Fox, Danny, and Roni Katzir. 2011. On the characterization of alternatives. *Natural Language Semantics* 19:87–107.

Matsumoto, Yo. 1995. The conversational condition on Horn scales. *Linguistics and Philosophy* 18:21–60.

Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:367–391.

van Tiel, Bob, Emiel van Miltenburg, Natalia Zevakhina, and Bart Geurts. 2016. Scalar diversity. *Journal of Semantics* 33:137–175.

Trinh, Tue, and Andreas Haida. 2015. Constraining the derivation of alternatives. *Natural Language Semantics* 23:249–270.

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Null disjunction in disguise

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While null conjunction is cross-linguistically very common, null disjunction is not.

(1) a. I saw John (**and**) Mary.
b. I saw John ∗(**or**) Mary. (Middle Egyptian may be an exception.)

There is, however, a type of disjunctive meaning which tends to be expressed using a null disjunctor.

(2) Uli looks 40 (**or/,**) 45 (at most).

Dropping the disjunction marker is possible (contra Winter 1998; Szabolcsi 2015) if the disjuncts are scalar and non-exclusive. The relationship between scalarity and inclusivity is automatic: if two disjuncts are members of a single scale, then disjunction is vacuous, i.e. in violation of Hurford's Constraint (HC, Hurford 1974). Null disjunction is therefore necessarily inclusive ((3) allows for an exclusive non-interval reading) when the disjuncts are scalar, i.e. ranging over a single scale. Note also the linear irreversibility of the disjuncts (which would retain the scalar and inclusive interval reading):

(3) I'll see you in **6** *(or) **5** minutes.

The fact that the contraposition constraint on relative word order in (null) disjunctions (3) also holds in interval expressions ('5 to 10 grapes' vs. *'10 to 5 grapes') can be taken as evidence that null disjunctions and intervals indeed share a common core. Furthermore, the distance between the scalar end-points needs to be reasonably dense or small (cf. (5); Viola Schmitt & Nina Haslinger, pers. comm.), involving a linear increment. (While the interval in (5) is linear, it is not sufficiently dense.)

(4) I need 5 (**or/,**) 10 Euros.

(5) *I need 50 (**or/,**) 500 Euros.

Interval-marking null disjunction is not only licensed with numeral disjuncts: scalar temporal terms also feature in null disjunction in Classical Japanese (taken from *Taketori Monogatari* [TM], ca. 10th c.). Reviewers tell me that this is also a productive expression in Romanian and even English ("I'll submit this Thursday, Friday").

(6) **Kinofu kefu** mikado-no notamaf-an koto
yesterday today emperor-GEN say.HON-TENT/ATTR thing
'what the Emperor says yesterday [**or**] today' (TM 56.2–3; Vovin 2003, 85; cf. TM 33.4–5)

Note that we do not come across null scalar disjunctions with reverse linear order (3), where the left disjunct would not be entailed by the right one. Evidence from density also comes from the fact that I could not find null disjunctions with time intervals involving $\langle[\![\text{yesterday}]\!], [\![\text{tomorrow}]\!]\rangle^{\text{time}}$ in Classical Japanese or elsewhere. For Classical Japanese, I also take it as evidence that time-referring expressions are indeed scalar, i.e., belonging to a fixed and dense scale (7a), just like (natural) numbers (7b).

(7) a. $\langle[\![\text{yesterday}]\!], [\![\text{today}]\!], [\![\text{tomorrow}]\!]\rangle^{\text{time}}$ (cf. 6)
b. $\langle[\![5]\!], [\![7]\!], [\![10]\!]\rangle^{\mathbb{N}}$ (cf. 4)

Interval-marking null disjunction (whether it turns out to be disguised or not) is therefore scalar, asymmetric, and (consequently) HC-violating. While it is not clear under a disjunction analysis how "5-10" acquires a meaning that is stronger than "at least 5" (the latter being a meaning of an unstrengthened Hurford disjunction), it appears that whatever builds disjunctive meaning can build interval expressions. Under a disjunction analysis, we would also expect disjunction of more than two disjuncts, which appears felicitous as long as the arguments are dense and linearly incremental:

(8) Dunno, pick as many cakes as you want; $\big[$two, (**or**) three, (**or**) {four, $*$nineteen}$\big]$.

References

Hurford, James R. 1974. Exclusive or inclusive disjunction. *Foundations of Language* 11:409–411.
Szabolcsi, Anna. 2015. What do quantifier particles do? *Linguistics & Philosophy* 38:159–204.
Vovin, Alexander. 2003. *A Reference Grammar of Classical Japanese Prose*. London: Routledge.
Winter, Yoad. 1998. Flexible Boolean Semantics: Coordination, Plurality and Scope in Natural Language. Doctoral Dissertation, Utrecht University.

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The exhaustive relevance of complex conjunctions

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In typologically diverse languages the same particle used to express an additive meaning is also used to express a conjunctive meaning, e.g., Japanese *-mo*, Romanian *şi*, Greek *ke*, Hungarian *is*, Russian *i* (Mitrović and Sauerland 2014, 2016; Braşoveanu and Szabolcsi 2013). For example, in Japanese, *guriinpiisu-mo* means 'peas too', while *guriinpiisu-mo burokkorii-mo* means '(both) peas and broccoli'.

Given the cross-linguistic prevalence of the additive-conjunctive duality, it is desirable to give a uniform analysis to these two uses of the same particle, something that Kobuchi-Philip (2009) and Braşoveanu and Szabolcsi (2013) do in their analyses. In their additive use these particles introduce an additive presupposition that there is an alternative which is true. For the conjunctive use, the above two studies have suggested that the additive presupposition of each occurrence of *-mo* gets satisfied by the other conjunct. Consequently, the conjunction *A-mo B-mo* carries no additive presupposition.

We point out a serious challenge for a uniform analysis along these lines, which seems to have gone unnoticed in the literature. In a nutshell, *A-mo B-mo* conjunctions, and their cross-linguistic counterparts, presuppose that there is nothing else that is contextually relevant, which we refer to as 'exhaustive relevance'. To illustrate, consider the following Japanese and Romanian sentences.

(1) Guriinpiisu-mo burokkorii-mo iru yo.
peas-MO broccoli-MO necessary PRT
'Both peas and broccoli are necessary.'

(2) Îmi trebuie şi fasole şi brocoli.
REFL.1 need ŞI peas ŞI broccoli
'I need both peas and broccoli.'

We observe that while these sentences are perfectly natural answers to *Which of peas and broccoli do you need to make the soup?*, (3), they are slightly degraded as answers to *Which of peas, broccoli and carrots do you need to make the soup?*, (4). Intuitively, the reason for this degradation is because these sentences do not seem to directly say anything about carrots, and thus fail to be complete answers, unlike the corresponding sentences with a simple conjunction which would be interpreted as implying that carrots are not necessary. Or to put it differently, the above sentences seem to require a Question under Discussion that only concerns peas and broccoli, and as answer to *Which of peas, broccoli and carrots do you need to make the soup?*, they seem to require accommodation of a more specific question *Which of peas and broccoli do you need*, which results in oddness.

(3) a. Suupu-ni-wa guriinpiisu-to buroccorii-no docchi-ga iru no?
soup-for-TOP peas-and broccoli-GEN which-NOM need Q

'Which of peas and broccoli do you need for the soup?'

b. Avem fasole şi brocoli. Ce îţi trebuie pentru supă?
have.1PL peas and broccoli what REFL.2SG need for soup
'We have peas and broccoli. What do you need for the soup?'

(4) a. Suupu-ni-wa guriinpiisu-to buroccorii-to ninjin-no dore-ga iru no?
soup-for-TOP peas-and broccoli-and carrot-GEN which-NOM need Q
'Which of peas, broccoli, and carrots do you need for the soup?'

b. Avem fasole, brocoli şi morcovi. Ce îţi trebuie pentru supă?
have.1PL peas broccoli and carrots. what REFL.2SG need for soup
'We have peas, broccoli and carrots. What do you need for the soup?'

This observation poses an issue for an analysis that aims at reducing the conjunctive use to the additive use, since the additive use does not put a comparable requirement on the set of contextually relevant alternatives. Specifically, the additive presupposition only requires there to be an alternative that is true, independently of what is asserted. If the conjunctive use involves satisfying this additive presupposition within the conjunction, the conjunction should have no presupposition.

We would like to note that *both A and B* in English shows a similar contrast with the simple conjunction *A and B* in terms of its acceptability as an answer to the question *Which of A, B and C?*. Since these construction do not involve an additive particle, the perceived exhaustive relevance cannot be attributed to additivity. This might be suggesting that the exhaustive relevance of *A-mo B-mo* should be attributed to something other than additivity, but it remains unclear what that might be.

(5) We have peas, broccoli and carrots. What do you need for the soup?

(6) I need (?both) peas and broccoli.

References

Braşoveanu, Adrian, and Anna Szabolcsi. 2013. Presuppositional *too*, postsuppositional *too*. In *The Dynamic, Inquisitive, and Visionary Life of ϕ, ?ϕ, and $\diamond\phi$: A Festschrift for Jeroen Groenendijk, Martin Stokhof, and Frank Veltman*, ed. Maria Aloni, Michael Franke, and Floris Roelofsen, 55–64.

Kobuchi-Philip, Mana. 2009. Japanese mo: universal, additive, and NPI. *Journal of Cognitive Science* 10:172–194.

Mitrović, Moreno, and Uli Sauerland. 2014. Decomposing coordination. In *Proceedings of the 44th Annual Meeting of the North East Linguistic Society (NELS 44)*, ed. Jyoti Iyer and Leland Kusmer, 39–52. Amherst, MA: GLSA.

Mitrović, Moreno, and Uli Sauerland. 2016. Two conjunctions are better than one. *Acta Linguistica Hungarica* 63:471–494.

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Scalar vagueness regulation and locative reference

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Scalar vagueness (Sauerland and Stateva, 2011, S&S) is a type of vagueness that concerns expressions that refer to points on a scale. S&S make the following observations: (i) scalar vagueness gives rise to granularity effects; (ii) vagueness regulators are shifters to finer (e.g. *exactly*) or coarser (e.g. *approximately*) levels of granularity.

S&S follow Krifka (2007) to account for granularity in numeral quantification, the standard example of scalar vagueness. Their view is compatible, however, with Hobbs's (1990) conception of granularity as model simplification. One implementation of this is that, given some domain, a granularity maps that domain to one of its subsets. For instance, a multiples-of-5 granularity for numerals will map 40 to 40, 41 to 40, and 43 to 45.

This perspective is helpful when considering non-numerical cases of scalar vagueness. The meaning of *here*, as in (1), depends on the granularity with which we establish the location of events.

(1) Pope Adrian VI was born here.

At first sight, this example seems to stretch the notion of *scale* somewhat. Standardly, we think of scales as partially ordered sets. With locations, which I take to be continuous sets of coordinates, the only ordering that makes sense is one of containment: L $<$ K whenever the coordinates that make up L are all in K (but not vice versa). This way, we get scales like *my office* $<$ *Utrecht* $<$ *the Netherlands* $<$ *the Milky Way*. Location-granularity could now be seen as a mapping from a set of locations to a subset. For instance, at town-level granularity, my Utrecht-based office is not in the domain, but mapped by the granularity function to Utrecht. Hence, an utterance of (1) in my office is false on a finer granularity, but true on a coarser one, since Adrian VI was born in Utrecht, though not in my office.

Now let's look at vagueness regulation. The combination *exactly here* is quite odd, but the precisifier *right* operates exactly as one would expect from S&S: it shifts to a finer granularity. An utterances of (2) in my office seems only true if the contextual granularity was originally (much) coarser than town-level.

(2) Pope Adrian VI was born right here.

While *approximately here* is odd, there are other approximators that do modify *here*. However, none of these appear to coarsen the granularity. An utterance of (3) in my office, which is located quite far from Adrian's birthplace, is intuitively false. Expressions like *roughly here* simply cannot provide a shift from room-level to town-level locations. The sentence in (3) means that Adrian was born *close to* the location of the speaker, rather than that he was born *at* that location taken from the perspective of a coarser granularity. As such, the modifiers in (3) appear to tap into a different notion of precision than *approximately* does in the numeral domain. Their meaning appears to be linked more directly to the coordinate system; it involves *distance*.

(3) Pope Adrian VI was born roughly / around / about here.

This poses a dilemma. On the one hand, locations could be taken to be scalar since that would allow us to have a general theory of granularity-dependence for scalar terms. On the other hand, while the precisifier *right* seems to work in a way similar to precisification of numerals, expressions that reduce precision for locative reference function differently. This may suggest that vagueness regulation is a much more heterogeneous phenomenon.

References

Hobbs, Jerry. 1990. Granularity. In *Readings in Qualitative Reasoning about Physical Systems*, ed. Daniel S. Weld and Johan de Kleer, 542–545. Morgan Kaufmann.

Krifka, Manfred. 2007. Approximate interpretation of number words: A case for strategic communication. In *Cognitive Foundations of Interpretation*, ed. Joost Zwarts, Gerlof Bouma, and Irene Kraemer, 111–126. Amsterdam: Mouton de Gruyter.

Sauerland, Uli, and Penka Stateva. 2011. Two types of vagueness. In *Vagueness and Language Use*, ed. Paul Égré and Nathan Klinedinst, 121–145. London: MacMillan.

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Unifying partitive and adjective-modifying *percent*

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Ahn and Sauerland (2015, 2017; hereafter A&S) analyze two constructions: proportional partitives like (1a), and "non-conservative" proportional measurement constructions like (1b):

(1) a. The company hired 70% of the women.
b. The company hired 70% women.
Paraphrase: 70% of the company's hirees were women.

A&S treat (1a) and (1b) as involving distinct syntactic representations that nonetheless both contain proportional partitive structures; in (1a) this is obvious, and in (1b) the partitive structure is embedded in a syntactic environment that generates the non-conservative reading. This snippet deals only with the partitive structure itself, and thus I focus on (1a).

According to A&S, (1a) has a structure like (2).

(2) [70 [percent [the women]]] λ_1 the company hired t_1

The crucial semantic work is done by ⟦percent⟧, which A&S define as in (3):

(3) $\llbracket\text{percent}\rrbracket_{\text{A\&S}} = \lambda x \lambda n \lambda P.\ \dfrac{\mu(x \sqcap \sigma y[P(y)])}{\mu(x)} = \dfrac{n}{100}$

where μ is a contextually determined measure function, $a \sqcap b$ is the mereological overlap of a and b, and $\sigma y[P(y)]$ is the sum of the members of P.

When ⟦percent⟧ combines with its arguments in succession, the result is as in (4).

(4) $\dfrac{\mu(\sigma x[\text{women}(x)] \sqcap \sigma y[\text{the company hired } y])}{\mu(\sigma x[\text{women}(x)])} = \dfrac{70}{100}$

Assuming that context assigns μ to $|\cdot|$ (cardinality), this gets the right result: the cardinality of the overlap of women and hirees, divided by the cardinality of the total plurality of women, is $\frac{70}{100}$.

While A&S's definition of ⟦percent⟧ gets the right results, it begs for unification with another use of *percent* as an adjectival modifier, as discussed by Kennedy and McNally (2005):

(5) The glass is 75% full.

How do we unify? I will start with the adjective-modifying case, then translate to partitives. For the former, we define ⟦percent⟧ as in (6); it takes an adjective denotation A (a relation between degrees and individuals) and number n, and returns a predicate true of x if the maximal degree to which x is A is n% of the way up A's scale.

(6) $\llbracket\text{percent}\rrbracket = \lambda A \lambda n \lambda x.\ \dfrac{\max(\{d \mid A(d)(x)\}) - \min(\text{RNG}(A))}{\max(\text{RNG}(A)) - \min(\text{RNG}(A))} = \dfrac{n}{100}$

where $\text{RNG}(A) \equiv \{d \mid \exists x[A(d)(x) \text{ is defined}]\}$

The reference to maximal/minimal degrees accounts for the familiar observation that proportional modifiers require closed scales (cf. *#70% tall*).

Turning to *70% of the women*, I roughly follow A&S in adopting the following syntax:

(7) [SOME [70 [percent [MUCH [the women]]]]] λ_1 the company hired t_1

Partially adopting ideas from Wellwood 2015, the main work here is done by silent MUCH, which takes an individual and returns an adjective-type denotation.

(8) $[\![\text{MUCH}]\!] = \lambda x \lambda d \lambda y : \mu(x) \geq d.\ y \sqsubseteq x \wedge \mu(y) \geq d$

$[\![\text{MUCH}]\!](x)(d)(y)$ presupposes that d is no greater than $\mu(x)$, and asserts that y is a part of x and $\mu(y)$ is at least d. As a result, $\min(\text{RNG}([\![\text{MUCH}]\!](x)))$ is the zero-degree of μ $(= 0_\mu)$, and because of the presupposition, $\max(\text{RNG}([\![\text{MUCH}]\!](x))) = \mu(x)$. Thus, $[\![$70% of the women$]\!]$ is as in (9):

(9) $[\![\text{percent}]\!]([\![\text{MUCH}]\!]([\![\text{the women}]\!]))([\![70]\!]) =$

$$\lambda y.\ \frac{\max(\{d \mid y \sqsubseteq \sigma x[\text{women}(x)] \wedge \mu(y) \geq d\}) - 0_\mu}{\mu(\sigma x[\text{women}(x)]) - 0_\mu} = \frac{70}{100}$$

In plain English, we get a predicate true of a part of the women iff its cardinality is 70% of that of the total plurality of women. This then restricts the existentially quantifying SOME, with the rest of the sentence being the scope; the resulting denotation of (1a) is as in (10):

(10) $$\exists y \left[\begin{array}{l} \dfrac{\max(\{d \mid y \sqsubseteq \sigma x[\text{women}(x)] \wedge \mu(y) \geq d\}) - 0_\mu}{\mu(\sigma x[\text{women}(x)]) - 0_\mu} = \dfrac{70}{100} \\ \wedge \text{the company hired } y \end{array} \right]$$

The final denotation is thus paraphrasable as follows: there is a plural individual y that is a collection of women whose cardinality is 70% of that of the total plurality of women, and is such that the company hired y. This matches the intuitive truth conditions of (1a), while adopting a unified semantic analysis for $[\![$percent$]\!]$. Moreover, while a full demonstration must be left for future work, this analysis can be extended equally well to A&S's treatment of (1b), and the proposed structural relationship between (1a) and (1b) can be maintained.

References

Ahn, Dorothy, and Uli Sauerland. 2015. The grammar of relative measurement. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 125–142.

Ahn, Dorothy, and Uli Sauerland. 2017. Measure constructions with relative measures: Towards a syntax of non-conservative construals. *The Linguistic Review* 34:215–248.

Kennedy, Christopher, and Louise McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81:345–381.

Wellwood, Alexis. 2015. On the semantics of comparison across categories. *Linguistics and Philosophy* 38:67–101.

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‘Not in my wildest dreams’: a part time minimizer?

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One of Sauerland’s many important contributions concerns dream reports (e.g., *In my dream I was Bill and I was marrying my granddaughter*). Percus and Sauerland (2003) show that pronoun interpretation in these seemingly idiosyncratic cases is subject to systematic syntactic constraints. We will consider another case involving *dream* – the fixed expression *in my (your, her, . . .) wildest dreams* – and argue that its interpretation is also grammatically constrained.

Sentences containing *in my wildest dreams* are ambiguous; for example, (1) has an interpretation that does not concern actual dreaming qua what one does while asleep, but rather reports the speaker’s earlier beliefs about the likelihood of her meeting Uli, and communicates her surprise that she did so. Additionally, (1) has a literal reading: in the speaker’s actual dreams there are no events of expecting to meet Uli.

(1) Not in my wildest dreams did I think I would meet Uli.

It is the first, non-literal interpretation that interests us. This use requires a doxastic attitude (2), and has a restricted distribution: it is licensed by negation (1), in the antecedent of conditionals (3a), and in questions (3b). Additionally, it is disallowed in positive contexts (3c) unless modified by *only* (3d):

(2) a. Not in my wildest dreams did I {imagine/suppose/#wish/#demand} that I would meet Uli.
b. #Not in my wildest dreams did I meet Uli.

(3) a. If in my wildest dreams I had thought I would meet Uli I would have re-read his papers beforehand.
b. In your wildest dreams, did you think you would meet Uli?
c. #In my wildest dreams I thought I would meet Uli.
d. Only in my wildest dreams did I think I would meet Uli.

A starting point for analyzing these data might be to assume that on its non-literal use *in my wildest dreams* is obligatorily focus-marked, and must be licensed by a focus particle. This may be overt, as in (3d) (pointed out to us by a reviewer), or covert. The latter possibility would explain the licensing of this use in downward entailing environments (1), (3a,b) – a property characteristic of negative polarity items, which are illicit in positive environments like (3c). If we assume that the covert focus particle is *even*, then this would correctly predict that without *only*, the phrase behaves like minimizer-type NPIs, such as *lift a finger* (Heim 1984). Like minimizers (Borkin 1971), the phrase imposes a negative bias in questions: in (3b), the expected answer is ‘no’.

This cannot be the whole story, however, since unlike minimizers, *in my wildest dreams* is not licensed (on the non-literal interpretation) in the restrictor of *every* (4) or the antecedent of indicative conditionals (5).

(4) #Everyone who in their wildest dreams thought they would meet Uli re-read his papers beforehand.

(5) #If in my wildest dreams I think I will meet Uli, then I will re-read his papers beforehand.

Additionally, the non-literal interpretation becomes unavailable if in (3d) *only* is replaced with other focus particles:

(6) {#Even/#Also} in my wildest dreams I thought that I would meet Uli.

Here then is the puzzle: the fixed expression *in x's wildest dreams* has a constrained distribution that is reminiscent of, but not identical to, that of well-studied polarity sensitive items, particularly minimizers. Additionally, in positive environments it can be licensed by *only* but not by other focus particles. We leave it to future work to understand better how *in x's wildest dreams* fits into the typology of polarity sensitive items.

References

Borkin, Ann. 1971. Polarity items in questions. In *Proceedings of CLS 7*, 53–62.

Heim, Irene. 1984. A note on negative polarity and downward entailingness. In *Proceedings of the 14th Annual Meeting of the North East Linguistic Society (NELS 14)*, ed. Charles Jones and Peter Sells, 98–107. Amherst, MA: GLSA.

Percus, Orin, and Uli Sauerland. 2003. Pronoun movement in dream reports. In *Proceedings of the 33rd Annual Meeting of the North East Linguistic Society (NELS 33)*, ed. Makoto Kadowaki and Shigeto Kawahara, 265–284. Amherst, MA: GLSA.

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Uli and our generation: some reminiscences

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The early 1990s. Uli gives his first talk. *Mary told me afterwards how impressed she was with the brilliant final speaker. (She had no idea that it was that same shy young man she had passed so often in the corridor.) I leaned over to my neighbor and reported:*

(1) Mary thinks that Uli has many qualities.

What I said was true because Mary situated herself in a world where *the final speaker* had many qualities. Percus and Sauerland (2003) explain this as follows: (1) has a structure where a silent element attaches to the name and creates a concept out of it – like the FINAL SPEAKER concept. In the embedded clause, this expression combines with a world variable as in (2). (2) then describes worlds in which *the value of that concept* has many qualities, and this is what we use to characterize Mary's doxastic alternatives.

(2) … [1 w_1 [**G**-Uli w_1] has many qualities]

In a case like (2), **G**-Uli combines with a world variable and thereby creates an individual-denoting expression. But if this proposal is right, it is natural to expect concept-denoting expressions like **G**-Uli to show up in other configurations as well. Does this happen? Fast forward to …

The early 2000s. Uli and I give a joint talk. *I delivered the first half, Uli delivered the second. John was apparently neither watching nor thinking very carefully. When I heard him expressing his amazement at the speaker's metamorphic skills, I came to this astonishing realization:*

(3) John thinks that Uli and I are the same person.

(3) was true because John situated himself in a world where *the closing presenter* and *the opening presenter* were the same person. Now, the predicate *are the same person* plausibly applies to a plurality of concepts: it means *have the same person as their value*. (See Barker 2007 for the contribution of adjectival *same*.) Here, the part of the embedded clause that we use to characterize John's doxastic alternatives could well be as in (4), then. In (4), no world variable combines with the concept-denoting expressions, and the two coordinate yielding a plurality of concepts.

(4) … [1 w_1 [**G**-Uli and **H**-I] are the same person]

(4′) is a possibility too if "concept-generators" can yield pluralities of concepts all by themselves – if they can sum together concepts for disjoint parts of a plural argument. The literature doesn't assume this. Should it? Cut to …

(4′) … [1 w_1 **G**-[Uli and I] are the same person]

A few days later. *Uli smiled at my description of John's confusion. No wonder. Those were his phi-feature days, and what I said was:*

(5) John thinks that we are the same person.

Sauerland (2003, 2008) argues that features like number and person are interpreted at the DP level. That has implications. Suppose concept-generators *can't* yield pluralities of concepts. In that case, the structure of (5) would have to contain a piece like (4) – the pronoun *we* would realize a complex coordinate structure just like the one there. But this would mean that the features responsible for the pronunciation *we* are interpreted in very different places. The plural feature could only concern the subject as a whole, which denotes a plurality (of concepts). On the other hand, the first person feature would have to be interpreted down below, within the coordination, as it is only there that we have an element whose denotation includes the speaker. If instead concept-generators can yield pluralities of concepts, then the structure of (5) could contain a piece like (4′), for example, and a neater picture emerges. We can maintain that both features are interpreted on the same DP, the concept-generator's sister.

Today. These sentences still attract attention (Zhang 2016). The last word will surely belong to Uli.

References

Barker, Chris. 2007. Parasitic scope. *Linguistics and Philosophy* 30:407–444.

Percus, Orin, and Uli Sauerland. 2003. On the LFs of attitude reports. In *Proceedings of the Conference "SuB7 – Sinn und Bedeutung"*, ed. Matthias Weisgerber, 228–242. Konstanz, Germany: Universität Konstanz.

Sauerland, Uli. 2003. A new semantics for number. In *Proceedings of the 13th Semantics and Linguistic Theory Conference (SALT 13)*, ed. Robert B. Young and Yuping Zhou, 258–275.

Sauerland, Uli. 2008. On the semantic markedness of phi-features. In *Phi Theory: Phi-Features Across Modules and Interfaces*, ed. H. Harbour, D. Adger, and S. Béjar, 57–82. Oxford: Oxford University Press.

Zhang, Linmin. 2016. External and internal *same*: a uniform analysis motivated by attitude reports. In *Proceedings of Sinn und Bedeutung 20*, ed. Nadine Bade, Polina Berezovskaya, and Anthea Schöller, 833–850.

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Why *them*?

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Sauerland (2003) has introduced the influential idea that the meaning of the Plural is vacuous, simply passing up the meaning it combines with, (1), in contrast with its singular counterpart, presupposing atomicity, (2). This proposal has sparked a lot of work in the literature based on this assumption about the Plural (Sauerland et al. 2005; Spector 2007; Ivlieva 2013; Zweig 2009; Mayr 2015 a.o.).

(1) $[\![\text{PL}]\!] = \lambda x.\ x$

(2) $[\![\text{SG}]\!] = \lambda x : |x| = 1\ .\ x$

The proposal above nicely captures the multiplicity inference of sentences like (3), arising from a *Maximize Presupposition!* (MP) competition with its singular counterpart in (4) (Heim 1991 a.o.).

(3) There are bathrooms on this floor. $\rightsquigarrow$ *There are multiple bathrooms on this floor.*

(4) There is a bathroom on this floor.

In addition, it correctly predicts this inference to disappear under negation, given the assumption that MP does not apply if it weakens the overall meaning of the sentence.

(5) There are no bathrooms on this floor. $\Rightarrow$ *There isn't any bathroom on this floor.*

Finally, this proposal can be extended to plural referential pronouns, according to which a pronoun like *they* is also analysed as in (6).

(6) $[\![\text{they}_i]\!]^g = [\![\text{PL}]\!]^g(g(i))$

According to (6), *they* does not require a plural referent, but it is felicitous as long as its singular counterpart is not assertable. Sauerland (2003) provides arguments in support of this analysis, against an alternative approach according to which *they* would always need a plural antecedent.

In this note, I want to add another argument for (6). As a first step building the argument, consider (7).

(7) There are bathrooms on this floor. The architect put **them** in a funny place.

(7) is unproblematic for both approaches, because the plural noun in the first sentence can be interpreted as entailing that there is more than one bathroom (regardless of how this is derived) thereby serving as a plural antecedent for *them* in the second sentence. Consider (8), on the other hand, adapted from the famous example by Barbara Partee given in (9), which uses a singular noun in the first disjunct and the singular pronoun *it* in the second one.

(8) Either there are no bathrooms on this floor, or the architect put **them**/??**it** in a funny place.

(9) Either there is no bathroom on this floor, or the architect put **it**/??**them** in a funny place.

In order to obtain the intuitively correct interpretation for the first disjunct of (8), the plural noun cannot be interpreted as entailing multiple bathrooms. The meaning of the first disjunct would otherwise be too weak. The sentence would have the meaning in (10) and it would be true if there is only one bathroom even if it's not true that the architect put it in a funny place.

(10) Either there aren't multiple bathrooms on this floor, or the architect put them in a funny place.

Assuming that the local context of the second disjunct entails the negation of the first one (see Schlenker 2008 and references therein), it would only entail that there are one or more bathrooms on this floor. This is not enough to license the plural pronoun in an approach requiring *them* to always have a plural referent. In Sauerland's (2003) account, however, there is no problem: *them* is allowed, as long as its singular counterpart isn't, which is intuitively correct, as shown in (9).

In sum, (8) constitutes another argument for the meaning in (6), supporting an approach to the semantics of the plural like the one defended in Sauerland 2003.

References

Heim, Irene. 1991. Artikel und Definitheit. In *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*, ed. Arnim von Stechow and Dieter Wunderlich, 487–535. Berlin: de Gruyter.

Ivlieva, Natalia. 2013. Scalar Implicatures and the Grammar of Plurality and Disjunction. Doctoral Dissertation, MIT.

Mayr, Clemens. 2015. Plural definite NPs presuppose multiplicity via embedded exhaustification. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 204–224.

Sauerland, Uli. 2003. A new semantics for number. In *Proceedings of the 13th Semantics and Linguistic Theory Conference (SALT 13)*, ed. Robert B. Young and Yuping Zhou, 258–275.

Sauerland, Uli, Jan Anderssen, and Kazuko Yatsushiro. 2005. The plural is semantically unmarked. In *Linguistic Evidence: Empirical, Theoretical, and Computational Perspectives*, ed. Stephan Kepser and Marga Reis, 413–434. Mouton de Gruyter.

Schlenker, P. 2008. Be articulate: A pragmatic theory of presupposition projection. *Theoretical Linguistics* 34:157–212.

Spector, Benjamin. 2007. Aspects of the pragmatics of plural morphology: On higher-order implicatures. In *Presupposition and Implicature in Compositional Semantics*, ed. Uli Sauerland and Penka Stateva. Palgrave.

Zweig, Eytan. 2009. Number-neutral bare plural and the multiplicity implicature. *Linguistics and Philosophy* 32:353–407.

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The rise and fall of non-conservatives

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Ahn and Sauerland (2017) observe that in several languages determiner phrases containing relative measures can express either a conservative construal as in (1a) or a non-conservative construal as in (1b).

(1) a. The company hired 75% of the women. (conservative)
b. The company hired 75% women. (non-conservative)

Whilst example (1a) considers the ratio of the company hires among all women, example (1b) concerns the ratio of women among the company hires.

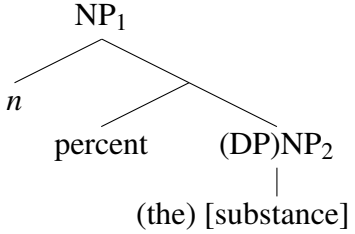
In German, for example, these interpretations can be distinguished by the case of the noun and the focus placement, as in example (2), which is adapted from Ahn and Sauerland 2017, ex. 5

(2) a. 30 Prozent der Studierenden arbeiten hier.
30 percent.NOM the.GEN students.GEN work here
'30 percent of the students work here.' (conservative)
b. 30 Prozent STUDIERENDE$_F$ arbeiten hier.
30 percent.NOM students.NOM work here
'30 percent of workers here are students.' (non-conservative)

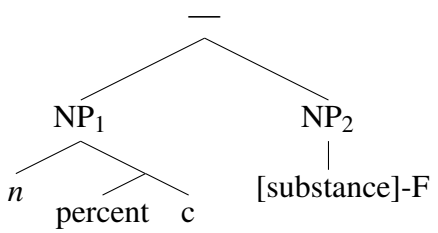
To account for the non-conservative construal Ahn and Sauerland combine quantifier raising and association with focus, and they propose a modification of the copy theory of movement.

They assume that in the conservative construal the measure noun and the substance noun, i.e. in (2) *the students*, form a constituent excluding the numeral argument of the measure noun. With the non-conservative construal, however, the measure noun and its numeral form a constituent excluding the substance noun, with the argument position of *percent* filled by a focus-sensitive restrictor *c*:

(3)



Conservative construal



Non-conservative construal

The details of their analysis are not important here, but their observation that focus is crucial for the non-conservative reading is. Interestingly, marking example (2b) with a fall-rise intonation contour, as shown in example (4), results in a conservative interpretation.

(4) 30 Prozent /STUDIERENDE$_{CT/F}$ arbeiten HIER$_F$\.
30 percent.NOM students.NOM work here
'30 percent of the students work here.' (conservative)

According to Büring (1997, 2003, 2016), a fall-rise contour indicates a contrastive topic. This analysis is usually challenged by theories that assume some kind of focus, e.g., multiple focus (Constant 2012), nested focus operators (Wagner 2012), topics that contain a focus (Krifka 1998) or contrastive focus within a topic (Umbach 2001). In their paper, Ahn and Sauerland do not discuss examples with fall-rise contours. They observe, though, that examples with no focus on the substance noun but on the VP instead have a conservative reading. That means, if one follows Büring, an analysis of example (4) would fall in line with Ahn and Sauerland.

If one follows the other approaches, however, it would be interesting to see how this can be integrated into the theory of Ahn and Sauerland. In either case, relative measures marked with fall-rise contours seem to contribute to the ongoing debate about how to analyze these contours. For that matter, as one reviewer pointed out, in Korean the topic marker *-nun* on the substance noun also seems to give rise to a conservative reading, and it had been argued before (Wee 1996) that the topic marker *-nun* corresponds to the fall-rise contour.

References

Ahn, Dorothy, and Uli Sauerland. 2017. Measure constructions with relative measures: Towards a syntax of non-conservative construals. *The Linguistic Review* 34:1–34.

Büring, Daniel. 1997. *The Meaning of Topic and Focus – The 59th Street Bridge Accent*. London: Routledge.

Büring, Daniel. 2003. On D-trees, Beans and B-accents. *Linguistics and Philosophy* 26:511–545.

Büring, Daniel. 2016. (Contrastive) Topic. In *The Handbook of Information Structure*, ed. Caroline Féry and Shinichiro Ishihara, 64–85. Oxford: Oxford University Press.

Constant, Noah. 2012. English rise-fall-rise: a study in the semantics and pragmatics of intonation. *Linguistics and Philosophy* 35:407–442.

Krifka, Manfred. 1998. Scope Inversion under Rise-Fall Contour in German. *Linguistic Inquiry* 29:75–112.

Umbach, Carla. 2001. Relating contrast and contrastive topic: a focus-semantic analysis of "but". In *Proceedings of the Information Structure, Discourse Structure, and Discourse Semantics ESSLLI 2001 Workshop*, ed. Ivana Kruijff-Korbayová and Mark Steedman, 175–188.

Wagner, Michael. 2012. Contrastive topics decomposed. *Semantics and Pragmatics* 5:1–54.

Wee, Hae-Kyung. 1996. Felicity condition of Korean and English contrastive topic. In *Proceedings of the 11th Pacific Asia Conference on Language, Information and Computation (PACLIC 11)*, ed. Byung-Soo Park and Jong-Bok Kim, 459–468. Seoul, Korea: Kyung Hee University.

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Vagueness and context-sensitivity of absolute gradable adjectives

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Absolute gradable adjectives such as *full* are typically considered to be context-invariant due to their underlying scale structure making available an endpoint. However, examples (1) and (2) differ with respect to the degree of fullness they convey:

(1) Uli clinked his full glass of champagne to get everyone's attention.

(2) Uli clinked his full glass of whiskey to get everyone's attention.

Sauerland and Stateva (2011) argue for a dualistic view of vagueness and distinguish between scalar and epistemic vagueness. They further propose that scalar vagueness relies on a particular contextual parameter, the granularity function. However, certain context effects as in (1) and (2) cannot be accounted for on the basis of the degree of granularity but rely on a context-dependent threshold triggered by the entity that the scalar adjective predicates over.

Absolute gradable adjectives are associated with an endpoint that their scale structure provides (3), while relative gradable adjectives (e.g., *tall*) are sensitive to an open scale that requires a context-dependent threshold (or degree) d that depends on a standard of comparison s (4) (Rotstein and Winter 2004, Kennedy and McNally 2005; inter alia).

(3) $[\![_{pos}\text{full}]\!] = \lambda x\,.\,\exists d[d = \text{endpoint}(\text{full}) \wedge [\![\text{full}]\!](d)(x)]$

(4) $[\![_{pos}\text{tall}]\!] = \lambda x\,.\,\exists d[d \geq s(\text{tall}) \wedge [\![\text{tall}]\!](d)(x)]$

In contrast to (3), a glass of whiskey (2) is considered *full* when it contains 4 cl. Thus, the threshold for the gradable property *full* in the whiskey-glass context is around 30%, whereas the context-invariant threshold is 100%. Absolute adjectives may thus deviate from their endpoint threshold (5).

(5) $[\![_{pos}\text{full [for a whiskey-glass]}]\!] = \lambda x\,.\,\exists d \begin{bmatrix} d \geq s(\lambda y : \text{whiskey-glass}(y).\text{full}(y) \\ \wedge [\![\text{full}]\!](d)(x) \end{bmatrix}$

In this respect, the functions of absolute (5) and relative adjectives (4) are very similar and may both need access to a contextually salient standard of comparison. The role of context-sensitivity however varies between relative and absolute adjectives. Relative adjectives indispensably require contextual import for the calculation of the threshold; absolute adjectives come with an endpoint that can be adjusted on the basis of contextual information. This suggests that although both types of scalar adjectives may rely on context, they should still differ in their underlying operations. Kennedy (2007) proposes that the endpoint of *full* represents a conventional threshold, but that pragmatic processes allow for scalar flexibility. McNally (2011) argues that absolute adjectives are subject to a rule that involves a maximum or conventional endpoint, while relative adjectives

rely on more elaborate reasoning about a comparison class. Lassiter and Goodman (2013) suggest that absolute adjectives are less vague than relative adjectives due to different priors. Experimental data from real-time processing is thus needed to determine the underlying dynamics.

In a first step, it should be shown that the threshold shifts from context to context by testing a larger sample of adjectives with varying objects (previous research has confined itself to a limited number of adjectives, e.g., Syrett et al. 2009, McNabb 2012 and Aparicio et al. 2015). In a rating task, participants evaluate the goodness of fit of adjectives and a set of images (e.g., whiskey-glasses with different degrees of fullness). Vagueness should be reflected in s-shaped proportion curves (Qing and Franke 2014). In a second step, the mechanisms involved in the comprehension of absolute and relative gradable adjectives should be assessed during real-time processing. Using event-related brain potentials, the cognitive response to images that deviate from an adjective's threshold can be recorded (and should be reflected in varying N400-amplitudes) to assess the impact of thresholds on adjective processing. This will indicate potential differences in the interpretation of the two types of adjectives or whether a uniform account of scalar vagueness should be maintained.

References

Aparicio, Helena, Ming Xiang, and Christopher Kennedy. 2015. Processing gradable adjectives in context: A visual world study. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 413–432.

Kennedy, Christopher. 2007. Vagueness and grammar: The semantics of relative and absolute gradable adjectives. *Linguistics and Philosophy* 30:1–45.

Kennedy, Christopher, and Louise McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81:345–381.

Lassiter, Daniel, and Noah D. Goodman. 2013. Context, scale structure, and statistics in the interpretation of positive-form adjectives. In *Proceedings of the 23rd Semantics and Linguistic Theory Conference (SALT 23)*, ed. Todd Snider, 587–610.

McNabb, Yaron. 2012. Standard fixing and context manipulation: An experimental investigation of degree modification. In *Proceedings of Sinn und Bedeutung 16*, ed. Ana Aguilar-Guevara, Anna Chernilovskaya, and Rick Nouwen, 447–460. Cambridge, MA: MITWPL.

McNally, Louise. 2011. The relative role of property type and scale structure in explaining the behavior of gradable adjectives. In *Vagueness in Communication*, ed. Rick Nouwen, Robert van Rooij, Uli Sauerland, and Hans-Christian Schmitz, 151–168. Berlin/Heidelberg: Springer.

Qing, Ciyang, and Michael Franke. 2014. Gradable adjectives, vagueness, and optimal language use: A speaker-oriented model. In *Proceedings of the 24th Semantics and Linguistic Theory Conference (SALT 24)*, ed. Todd Snider, Sarah D'Antonio, and Mia Weigand, 23–41.

Rotstein, Carmen, and Yoad Winter. 2004. Total adjectives vs. partial adjectives: Scale structure and higher-order modifiers. *Natural Language Semantics* 12:259–288.

Sauerland, Uli, and Penka Stateva. 2011. Two types of vagueness. In *Vagueness and Language use*, ed. Paul Égré and Nathan Klinedinst, 121–145. London: Palgrave Macmillan.

Syrett, Kristen, Christopher Kennedy, and Jeffrey Lidz. 2009. Meaning and context in children's understanding of gradable adjectives. *Journal of Semantics* 27:1–35.

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More or less an approximator

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In an important and enjoyable paper, Sauerland and Stateva (2007) investigate the class of *approximators*, modifiers that serve to make vague assertions more or less precise. All of these items, they propose, function by regulating the level of *granularity* at which the modified expression is interpreted, though they do so in different ways, the result being combinatorial restrictions that distinguish members of the class from one another. A case in point is *more or less*, which – like *about* and *approximately* – yields a coarse-grained, approximate interpretation of the expressions it composes with, but which is seemingly limited to modifying scalar endpoints:

(1) More or less dry / pure / clean / #tall / #three

I have always considered this to be a puzzling sort of restriction. Why should a modifier that intuitively describes values either greater or less than some point be specialized for precisely those cases where there *are* no higher scalar values, only lower ones? It turns out that the facts are actually more complicated, but looking at a broader range of data suggests a solution to the puzzle, and also points to some more general conclusions. *More or less* does not compose only with maximum standard gradable adjectives such as *dry* and *clean* but also with universals of all sorts (*more or less everyone*; *more or less forever*), expressions of equality (*more or less the same*), and nominal and verbal expressions, including non-scalar ones for which a granularity-based analysis seems unlikely.

(2) It's more or less a hangout for the kids.

(3) I more or less told him that.

It is also not completely precluded from modifying midpoint-denoting expressions, occurring felicitously with spatial expressions (4), adjectival equatives (5), and proportional measures (6):

(4) She stood more or less in the middle of the room.

(5) The plutonium is shaped into a ball more or less as big as a grapefruit.

(6) More or less half / ??twenty of the students supported the decision.

The generalization seems to be that *more or less* composes with *relative but not absolute* measures. This suggests that it does not operate on granularity at all, but rather invokes indeterminacy in the reference point or standard of comparison. That is, in *more or less dry*, the approximating effect does not derive from a coarse-grained interpretation of an endpoint standard but rather via coercion of the location of that standard to some lower scalar position, with respect to which the measured value could be either higher or lower. The other felicitous examples can be taken to involve a similar sort of indeterminacy, e.g. regarding the size of grapefruits, the precise location of the center of the room, or the maximal domain over which *every* or *half* quantifies. Even the nominal

and verbal cases plausibly derive from an underlying flexibility of interpretation. But the scalar position of an absolute measure such as *20* cannot be shifted; hence *more or less* is degraded.

If this line of argumentation goes through, it would mean that scale granularity is not the only mechanism by which (im)precision is encoded. From the infelicity of #*more or less tall* we might also be tempted to suspect (contrary to the prevailing view) that the interpretation of relative gradable adjectives does not actually involve comparison to a threshold or standard. The challenge as always is to formalize these rather imprecise intuitions.

References

Sauerland, Uli, and Penka Stateva. 2007. Scalar vs. epistemic vagueness: evidence from approximators. In *Proceedings of the 17th Semantics and Linguistic Theory Conference (SALT 17)*, ed. Tova Friedman and Masayuki Gibson, 228–245.

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Plural anaphoric reference and non-conservativity

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Quantificational structures of the form $D(A)(B)$ like *most MPs attended the meeting* can provide three potential antecedents for subsequent plural pronouns: the restrictor set (MAXSET) A, the reference set (REFSET) $A \cap B$, and the complement set (COMPSET) $A \cap \overline{B}$. Whereas reference to MAXSET and REFSET, as in (1) and (2), is always available, reference to COMPSET is restricted to negative quantifiers and is only available under certain pragmatic conditions (Nouwen 2003).

(1) They all attended the Tuesday meeting.

(2) They even stayed till the end.

Given conservativity, the general availability of MAXSET and REFSET anaphora seems very natural; the sets needed to evaluate the truth-conditions of $D(A)(B)$ are also the ones available for anaphoric reference. This raises interesting questions about non-conservative construals (NCC). Ahn and Sauerland (A&S, 2015, 2017) identify relative measures as NCCs; (3) specifies the ratio of women the company hired to all the people hired by the company, so that the men hired by the company are relevant in establishing its truth. Although anaphora to the women the company hired is possible, as in (4a), anaphora to the people the company hired is degraded, as in (4b), as is anaphora to the set of women in (4c).

(3) The company hired 75% WOMEN_F.

(4) a. They will be paid 10% more than the men.
b. #They will all start working next month.
c. #We rejected some of them for lack of experience.

A&S provide an analysis of (3) that structurally unifies relative and intersective measures, as in *the company hired two dozen women*, which exhibit the same anaphoric possibilities. A&S's analysis is built around the entry for *percent* in (5) (where μ is a contextually determined measure function). Factoring in focus-sensitivity and QR of *75%*, as in (6), the restrictor of the generalized quantifier *75 [percent c]]* is the variable *c* resolved to the set of all people hired by the company (MAXSET), whereas the scope is the sum of all women hired by the company (SCOPSET), which is identical to REFSET.

(5) $[\![\text{percent}]\!] = \lambda x.\lambda n.\lambda P.\mu(x \sqcap \sigma y[P(y)])/\mu(x) = n/100$

(6) [75 [percent c]] [$\sim c$ [λz [the company hired [the$_z$ women]]]]

In the case of NCCs of relative measures one cannot simply relate their dynamic properties to their truth-conditional requirements. Although anaphora to the set of women the company hired can be explained as a case of REFSET anaphora, the unavailability of MAXSET anaphora is puzzling.

Notice, moreover, that although anaphora to the set of women is correctly predicted to be unavailable in the A&S account, it is available in the case of other NCCs, like *the company hired many WOMEN*, in the relevant reading, indicating a limit in any attempt to unify the two. Similarly, any attempt to reduce (3) to partitive structures like *30% of the women the company hired live in NYC* is challenged by the fact that partitives do allow MAXSET anaphora (as pointed out to me by an anonymous reviewer). A successful account of (3), then, will not only have to correctly predict the pattern of anaphoric possibilities in (4), but also explain why this pattern is identical to that of intersective measures, and not identical to that of other NCCs or corresponding partitive structures.

References

Ahn, Dorothy, and Uli Sauerland. 2015. The grammar of relative measurement. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 125–142.

Ahn, Dorothy, and Uli Sauerland. 2017. Measure constructions with relative measures: Towards a syntax of non-conservative construals. *The Linguistic Review* 34:215–248.

Nouwen, Rick. 2003. Plural Pronominal Anaphora in Context. Doctoral Dissertation, Utrecht University.

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An argument for the trivalent approach to presupposition projection

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According to several theories of presupposition (Heim 1983; Schlenker 2008, 2009, a.o.), presupposition triggers in the scope of universal quantifiers (as in (1)) yield a *universal presupposition* (cf. (1a), while in static trivalent approaches (Peters 1979; Beaver and Krahmer 2001; George 2008, 2014; Fox 2008), the presupposition is strictly weaker. In such approaches, (1) presupposes the disjunction of its the truth-conditions and its falsity-conditions, and a universal statement is false as soon as there exists a counterexample satisfying the presuppositional part of the predicate but not its assertive part (cf. (1b)).

(1) Every linguist stopped smoking.
   a. Presupposition under the Universal Projection (UP) view: 'Every linguist used to smoke'.
   b. Presupposition under the trivalent view: 'Every linguist used to smoke and stopped, or at least one linguist used to smoke and didn't stop'.

I claim that the interpretation of the sentence in (2) provides an argument for the trivalent approach.

(2) Every linguist agrees with every other linguist that Uli made major contributions to the field.

First, note that *x agrees with y that p* presupposes that *y* believes *p* (Lahiri 2002). I assume the following LF for (2) (*p* abbreviates the that-clause):

(3) [Every linguist][λx[every linguist diff from x][λy[x agrees with y that p]]]

On the UP view, (2) is predicted to presuppose (4a), which reduces to (4b) (assuming there exist several linguists):

(4) a. For every linguist l and every linguist l' distinct from l, l' believes p.
   b. Every linguist believes p.

Since (2) also *asserts* that every linguist believes *p*, (2) is predicted to assert what it presupposes. It should thus pattern with (5), which asserts what it presupposes and is perceived to be tautological (technically, it is *Strawson*-tautological, being Strawson-entailed by the tautology – cf. von Fintel 1999):

(5) Mary is her sister's sister.

(2), however, is not perceived as tautological.

As a reviewer notes, the meaning of *agree with* might be more complex. For instance, the sentences in (6) suggest that Mary was aware of Paul's opinion and discussed it with him before agreement was/wasn't reached. This inference, however, behaves like a presupposition, being preserved, e.g., under negation. Even if we assume a stronger presupposition for *agree with* to take this into account, the assertive content would still be redundant.

(6) Mary agreed/didn't agree with Paul that Jane should be invited.

The trivalent view fares better. On this view, (2) is true if every linguist believes p, and false if there exists a pair of linguists (l, l') that falsifies the universal claim that for every linguist l and every linguist l' distinct from l, l agrees with l' that p. That is, it is false if there is a pair of linguists (l, l') such that l' believes p and l doesn't. The predicted presupposition – the disjunction of the truth and falsity conditions – is as in (7a), which reduces to (7b) (assuming there exists at least one linguist):

(7) a. Every linguist believes p, or there is a linguist who believes p and another linguist who does not.

b. There is a linguist who believes p.

This seems better. The presupposition no longer entails the assertion. Furthermore, the predicted presupposition seems plausible. In (8), for instance, an existential inference seems warranted.

(8) Does every linguist agree with every other linguist that Uli made major contributions to the field?

References

Beaver, David, and Emiel Krahmer. 2001. A partial account of presupposition projection. *Journal of Logic, Language and Information* 10:147.

von Fintel, Kai. 1999. NPI licensing, Strawson entailment, and context dependency. *Journal of Semantics* 16:97–148.

Fox, Danny. 2008. Two short notes on Schlenker's theory of presupposition projection. *Theoretical Linguistics* 34:237–252.

George, B.R. 2008. A new predictive theory of presupposition projection. In *Proceedings of the 18th Semantics and Linguistic Theory Conference (SALT 18)*, ed. Tova Friedman and Satoshi Ito, 358–375.

George, B.R. 2014. Some remarks on certain trivalent accounts of presupposition projection. *Journal of Applied Non-Classical Logics* 24:86–117.

Heim, Irene. 1983. On the projection problem for presuppositions. In *Proceedings of the 2nd West Coast Conference on Formal Linguistics (WCCFL 2)*, ed. Michael Barlow, Daniel P. Flickinger, and Michael T. Wescoat, 114–125. Somerville, MA: Cascadilla Press.

Lahiri, Utpal. 2002. *Questions and Answers in Embedded Contexts*. Oxford University Press on Demand.

Peters, Stanley. 1979. A truth-conditional formulation of karttunen's account of presupposition. *Synthese* 40:301–316.

Schlenker, Philippe. 2008. Be articulate: A pragmatic theory of presupposition projection. *Theoretical Linguistics* 34:157–212.
Schlenker, Philippe. 2009. Local contexts. *Semantics and Pragmatics* 2:1–78.

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‘The case against fuzzy logic revisited’ revisited

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Contradictions like *The circle is big and not big* are sometimes judged true if the circle is borderline big. This observation has been taken to show that classical logic is an inadequate tool for describing linguistic meaning, and that one should instead adopt a logic that allows for degrees of truth, e.g., fuzzy logic (Alxatib et al. 2013). According to fuzzy logic, the truth value of a conjunction is the lowest truth value of its conjuncts. Hence, if *The circle is big* and *The circle is not big* are true to degrees 0.6 and 0.4, *The circle is big and not big* is true to degree 0.4.

Sauerland (2011) tested whether fuzzy logic captures people’s intuitions about contradictions. Participants marked a value between 0 and 100 to rate the truth value of two sentences—abbreviated as A and B—that were borderline true, as well as their negations $\neg A$ and $\neg B$, the conjunctions $A \wedge \neg B$ and $B \wedge \neg A$, and the contradictions $A \wedge \neg A$ and $B \wedge \neg B$. Table 1 shows the mean truth ratings. Sauerland argues that the results speak against fuzzy logic because $B \wedge \neg A$ was rated significantly lower than $A \wedge \neg A$, even though the lowest-truth-value rule predicts comparable ratings. However, the low rating for $B \wedge \neg A$ is surprising on any account, especially since $A \wedge \neg B$ behaved as expected. Moreover, fuzzy logic almost perfectly predicts the ratings for contradictions. The results are thus not unequivocal.

A	B	$\neg A$	$\neg B$	$A \wedge \neg A$	$B \wedge \neg B$	$A \wedge \neg B$	$B \wedge \neg A$
45	42	46	47	43	47	43	26

Table 1: Mean truth ratings (Sauerland 2011)

To obtain more decisive evidence, we expanded on Sauerland’s paradigm to test a much wider range of borderline and non-borderline situations instead of just one. 288 participants on MTurk each saw a sentence and five displays. There were four types of sentences:

(1) a. simple: *The circle is P*
b. negative: *The circle is not P*
c. conjunction: *The circle is P and not Q*
d. contradiction: *The circle is P and not P*

P was varied between *red* and *big*; *Q* between *big* and *red*. Figure 1 shows an example display. Each display randomly varied the circle’s size and redness. For the purpose of analysis, we normalised these two dimensions. Participants had to indicate whether the sentence was true or false in each display. Thus, we tested a wide range of borderline and non-borderline situations.

Assuming that the proportion of ‘true’ responses approximates fuzzy truth (Hampton 2010), we fitted S-shaped membership functions to capture the fuzzy truth values of simple and negative sentences (Zadeh 1983). These functions are plotted in Figure 2 alongside the binned mean truth

values assigned to contradictions. Afterwards, we used the membership functions to determine the fuzzy truth values for conjunctions and contradictions based on the lowest-truth-value rule, and calculated how well these correlated with participants' judgements. The correlations were high for conjunctions ($r = .81$) but not for contradictions ($r = .24$). Fuzzy logic thus provides a satisfactory account of people's intuitions about conjunctions but not contradictions.

Figure 1: Example trial.

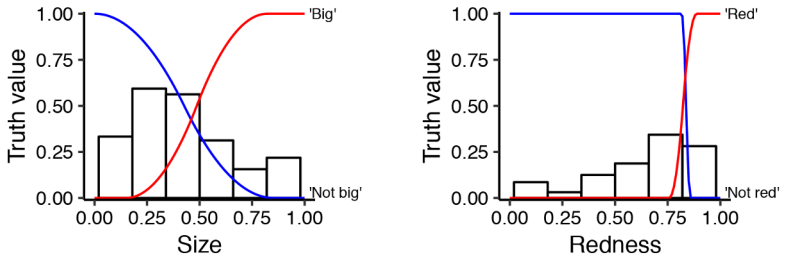

Figure 2: Binned mean truth values for *The circle is big and not big* (left) and *The circle is red and not red* (right) alongside membership functions.

References

Alxatib, Sam, Peter Pagin, and Uli Sauerland. 2013. Acceptable contradictions: pragmatics or semantics? A reply to Cobreros et al. *Journal of Philosophical Logic* 42:619–634.

Hampton, James A. 2010. Typicality, graded membership, and vagueness. *Cognitive Science* 31:355–384.

Sauerland, Uli. 2011. The case against fuzzy logic revisited. In *Understanding Vagueness: Logical, Philosophical and Linguistic Perspectives*, ed. Petr Cintula, Christian G. Fermüller, Lluis Godo, and Petr Hájek, 185–198. London, United Kingdom: College.

Zadeh, Lotfi. 1983. A computational approach to fuzzy quantifiers. *Computers & Mathematics with Applications* 9:149–184.

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A developmental asymmetry between the singular and plural

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Semantic theories of the plural aim to capture the observation that plural morphology is often associated with a 'more than one' meaning; (1a), for example, usually conveys (1b). This multiplicity inference typically disappears in downward-entailing environments; (2a) is not equivalent to the negation of (1b), but rather is interpreted along the lines of (2b).

(1) a. Elliott read books.
b. Elliott read more than one book.

(2) a. Elliott didn't read books.
b. Elliott didn't read a (single) book.

According to Sauerland (2003), agreement features such as the singular feature express presuppositions that are interpreted in a ϕ head that takes DP as its complement. The SINGULAR feature in particular expresses the presupposition that its complement refers to a single atomic entity, while the PLURAL feature is presuppositionless:

(3) $[\![\text{SINGULAR}]\!](x)$ is defined only if $\#x = 1$
$[\![\text{SINGULAR}]\!](x) = x$ wherever it is defined

(4) $[\![\text{PLURAL}]\!](x)$ is always defined
$[\![\text{PLURAL}]\!](x) = x$ wherever it is defined

To capture the distribution of the plural, Sauerland invokes *Maximize Presupposition* (Heim 1991): between two alternative morphemes, the one with the stronger presupposition must be used wherever that presupposition is satisfied. Whenever the presupposition of the singular is satisfied, then, the singular, and not the plural, must be used.

Developmental studies have investigated plural meanings in children as young as 20 months using preferential looking paradigms; children are invited to, e.g., "Look at the blicket(s)!" when faced with a picture of a single novel entity and a picture of a plural novel entity (Kouider et al. 2006). Knowledge of the plural meaning reportedly emerges earlier than that of the singular (Davies et al. 2019), with 20–24-month-olds performing better than chance on plurals but not on the singular (Arias-Trejo et al. 2014; Davies et al. 2017). As Arias-Trejo et al. (2014) point out, a general bias for 'plural' displays containing more items (Carey 1978; Jolly and Plunkett 2008) cannot fully capture the data: children reportedly showed a significant *increase* in their looks to the plural target *beyond their baseline preference* in response to plural morphology, but did not shift from the baseline in response to the singular.

The developmental asymmetry between the singular and plural poses an interesting puzzle for semantic theories. In a way, Sauerland's theory makes the presuppositional singular more complex than the non-presuppositional plural; perhaps children acquire the presuppositionless item before

the presuppositional one. On the other hand, without the presupposition, there is no competition between the two forms; prior to acquiring the singular presupposition, children might thus be expected to perform at chance on both.

An alternative explanation, raised by Arias-Trejo et al. (2014), is that children might view both displays as compatible with the singular, singling out an individual object from either display. As an anonymous reviewer points out, perhaps children treat the singular as entailing, rather than presupposing, a cardinality of one, leading them to distinguish the singular and plural in this respect. To determine children's initial interpretations of the singular and plural, it may prove fruitful to examine embedded environments, as has been done for slightly older children (e.g., Sauerland et al. 2005; Tieu et al. 2014; Renans et al. 2018).

References

Arias-Trejo, Natalia, Lisa M. Cantrell, Linda B. Smith, and Elda A. Alva Canto. 2014. Early comprehension of the Spanish plural. *Journal of Child Language* 41:1356–1372.

Carey, Susan. 1978. Less may never mean more. In *Recent Advances in the Psychology of Language*, ed. R. Campbell and P. Smith, 109–132. New York: Plenum Press.

Davies, Benjamin, Nan Xu Rattanasone, and Katherine Demuth. 2017. Two-year-olds' sensitivity to inflectional plural morphology: Allomorphic effects. *Language Learning and Development* 13:38–53.

Davies, Benjamin, Nan Xu Rattanasone, Tamara Schembri, and Katherine Demuth. 2019. Preschoolers' developing comprehension of the plural: The effects of number and allomorphic variation. *Journal of Experimental Child Psychology* 185:95–108.

Heim, Irene. 1991. Artikel und Definitheit. In *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*, ed. Arnim von Stechow and Dieter Wunderlich, 487–535. Berlin: de Gruyter.

Jolly, Helen R., and Kim Plunkett. 2008. Inflectional bootstrapping in 2-year-olds. *Language and Speech* 51:45–59.

Kouider, Sid, Justin Halberda, Justin Wood, and Susan Carey. 2006. Acquisition of English number marking: The singular-plural distinction. *Language Learning and Development* 2:1–25.

Renans, Agata, Jacopo Romoli, Maria-Margarita Makri, Lyn Tieu, Hanna de Vries, Raffaella Folli, and George Tsoulas. 2018. The abundance inference of pluralised mass nouns is an implicature: Evidence from Greek. *Glossa: A Journal of General Linguistics* 3:103.

Sauerland, Uli. 2003. A new semantics for number. In *Proceedings of the 13th Semantics and Linguistic Theory Conference (SALT 13)*, ed. Robert B. Young and Yuping Zhou, 258–275.

Sauerland, Uli, Jan Andersen, and Kazuko Yatsushiro. 2005. The plural is semantically unmarked. In *Linguistic Evidence: Empirical, Theoretical, and Computational Perspectives*, ed. Stephan Kepser and Marga Reis, 413–434. Mouton de Gruyter.

Tieu, Lyn, Cory Bill, Jacopo Romoli, and Stephen Crain. 2014. Plurality inferences are scalar implicatures: Evidence from acquisition. In *Proceedings of the 24th Semantics and Linguistic Theory Conference (SALT 24)*, ed. Todd Snider, Sarah D'Antonio, and Mia Weigand, 122–136.

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A tense question

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Sauerland and Yatsushiro (2017), henceforth S&Y, take the *remind-me* reading of such questions as (1a) to arise from a presupposition triggered by the adverb *again*: (1a) can be read as simply asking for the addressee's name, with the inference that the name was made known earlier.

(1) a. $[_S\ [_Q$ what is your name] again]?
b. $[\![S]\!] = [\![Q]\!]$ if there was an event preceding the utterance at which the complete answer to Q was made common ground, undefined otherwise

S&Y point out that the *remind-me* reading can also come about by way of past tense. Thus, (2a) allows the same reading as (1a). This observation is given a straightforward account by S&Y in terms of reference time effects: (2a) picks out a salient time interval C in the past which includes the communication of the name and excludes the utterance. We will represent this reading by subscripting the tensed verb with C.

(2) a. $[_{Q_C}$ what was$_C$ your name]?
b. $[\![Q_C]\!]$ = 'for which x: your name is x at C'

Past tense and *again* can co-occur: (3a) is acceptable under the same reading as (1a) and (2a). S&Y take this to be unsurprising: past tense and *again*, they claim, are "two independent mechanisms that work congruently [...]." Applying their analysis, the meaning of (3a) would be (3b).

(3) a. $[_{S_C}\ [_{Q_C}$ what was$_A$ your name] again]?
b. $[\![S_C]\!] = [\![Q_C]\!]$ if there was an event preceding the utterance at which the complete answer to Q_C was made common ground, undefined otherwise

Now consider the question below, where the subscript L is mnemonic for 'life.'

(4) Q_L = 'for which x: your name is x throughout your life'

Let us note two facts about Q_L. The first is specific to English. In this language, Q_L can be expressed by the present tense sentence in (5).

(5) what is$_L$ your name?

The second fact is logical: the complete answer to Q_L is stronger than that to Q_C. Obviously, the name you have throughout your life is the name you have at C. These two facts, together with S&Y's analysis of *remind-me* questions, mean that the presupposition of (6a) is stronger than that of (6b).

(6) a. $[_{S_L}\ [_{Q_L}$ what is$_L$ your name] again]?
presupposition: there was an event preceding the utterance at which the complete answer to Q_L was made common ground

b. $[_{S_C}\ [_{Q_C}$ what was$_C$ your name] again]?
presupposition: there was an event preceding the utterance at which the complete answer to Q_C was made common ground

The two questions (6a) and (6b), therefore, stand in the same relation as (7a) and (7b).

(7) a. who also$_x$ went to Harvard?
presupposition: x went to Harvard

b. who also$_x$ went to Harvard or Yale?
presupposition: x went to Harvard or Yale

We can observe that in a context where the presupposition of (7a) is satisfied, the question with the weaker presupposition, i.e. (7b), is deviant, as evidenced by the contrast between (8b) and (9b) as follow-ups to the assertion *John went to Harvard* (cf. Spector and Sudo 2017).

(8) a. John went to Harvard.

b. Who also$_j$ went to Harvard?

(9) a. John went to Harvard.

b. #Who also$_j$ went to Harvard or Yale?

In the context of this conversation, the presupposition of Q_L is satisfied, but Q_C, to my ear, is not deviant. To the extent that my intuition is reliable, then, we have a question to ponder: what distinguishes the difference between (6a) and (6b) from that between (7a) and (7b)?

References

Sauerland, Uli, and Kazuko Yatsushiro. 2017. Remind-me presuppositions and speech-act decomposition: Evidence from particles in questions. *Linguistic Inquiry* 48:651–677.

Spector, Benjamin, and Yasutada Sudo. 2017. Presupposed ignorance and exhaustification: how scalar implicatures and presuppositions interact. *Linguistics and Philosophy* 40:473–517.

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On *remind-me* presuppositions and embedded question acts

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Sauerland and Yatsushiro (2017) provide a convincing account of *remind-me* presuppositions. In (1), such a presupposition is triggered by *again*.

(1) What is your name again?

They argue that these support the syntactic representation of the questioning speech act as in (2), since *again* scopes between the underlined speech act components. The paraphrase is mine.

(2) Imp2 *again* (CG (what your name is))
'I want you to bring about that we/I know again what your name is.'

Sauerland and Yatsushiro (2017) show that German *remind-me* presuppositions occur in embedded interrogatives under circumstances analyzed by Krifka (2001, 2003) as embedded question acts, as in (3a), contrasting with (3b):

(3) a. Lina will wissen/fragt sich was (noch mal) Dein Name ist.
Lina wants know/asks herself what (again) your name is
'Lina want to know/wonders what your name is (again).'
b. Lina weiß/verkündet was (#noch mal) Dein Name ist.
Lina knows/announces what (#again) your name is
'Lina knows/announces what your name is (#again).'

The notion of embedded question acts goes against a classical view that only unembedded structures can constitute speech acts. However, the evidence from *remind-me* presuppositions is striking and converges with a range of compelling arguments by Krifka (2001, 2003). I extend these minimally by pointing out that the embedded quoted speech act in (4) harmonizes with the matrix clause in (4a) but not in (4b).

(4) a. Lina wants to know/wonders: "What is your name?"
b. * Lina knows/announces: "What is your name[?/.]"

Consider now the following cases. The *remind-me* reading is not possible in (5). We might say that *forget* does not subcategorize (let us say) for an embedded speech act. However, (6) is fine and (7) is also fairly good.

(5) Gestern hatte er schon vergessen, was (#noch mal) ihr Name war.
yesterday had he already forgotten, what (again) her name was
'Yesterday he had already forgetten what her name was (#again).'

(6) Ich habe vergessen, was (noch mal) Ihr Name war.
I have forgotten what (again) your. POLITE name was
'I have forgotten what your name was (again).'

(7) Er sagte zu ihr, dass er vergessen habe, was (noch mal) ihr Name war.
he said to her that he forgotten has what (again) her name was
'He told her that he has forgotten what her name was (again).'

In a speech situation as in (6) and (7), X telling Y that X forgot Y's name can come with the understanding that X is thereby asking what Y's name is. An additional questioning speech act is there by a contextual inference. This suggests that what is more generally relevant is the entailment that there is a questioning speech act. This could be captured in terms of the contribution of Imp2-CG as a post-supposition (see e.g. Brasoveanu 2013). A sketch of this idea is given in (8).

(8) Where $\mathrm{CP_Q}$ is an interrogative and $[\![\mathrm{CP_Q}]\!]^{w,t}$ the set of its true answers at t in w,
$[\![\text{Imp2-CG } \mathrm{CP_Q}]\!]^{w,t} = [\![\mathrm{CP_Q}]\!]^{w,t}$
if $ask(w,t,[\![\mathrm{CP_Q}]\!]^{w,t})$ is entailed, which may be verified after the compositional process.

Here *ask* is a shorthand for the meaning assigned in steps to Imp2-CG by Sauerland and Yatsushiro.

In (1)/(2), $ask(w,t,[\![\mathrm{CP_Q}]\!]^{w,t})$ is entailed by the facts of w, i.e. by the speaker performing the question act, with w the world of the utterance and t the speech time. In the other examples, (8) is applied to an embedded clause [Imp2-CG $\mathrm{CP_Q}$], with w and t as the parameters of evaluation of the matrix clause. In (3a) and, with the contextual inference, in (6) and (7), the truth of the entire sentence entails $ask(w,t,[\![\mathrm{CP_Q}]\!]^{w,t})$. The post-supposition of embedded [Imp2-CG $\mathrm{CP_Q}$] is thus satisfied, and Imp2-CG allows a *remind-me* reading. In (3b) and (5), no question act is independently provided at any level. Therefore Imp2-CG cannot be present and a *remind-me* reading cannot come about.

For the quotes within (4a,b), let $[\![\text{Imp2-CG } \mathrm{CP_Q}]\!]^{w,t}$ be their interpretation, with Imp2-CG part of the quoted clause and with w and t parameters the matrix clause. (8) then allows (4a) but not (4b).

References

Brasoveanu, Adrian. 2013. Modified numerals as post-suppositions. *Journal of Semantics* 30:155–209.

Krifka, Manfred. 2001. Quantifying into question acts. *Natural Language Semantics* 9:1–40.

Krifka, Manfred. 2003. Quantifiers in questions. *Korean Journal of English Language and Linguistics* 3:499–526.

Sauerland, Uli, and Kazuko Yatsushiro. 2017. Remind-me presuppositions and speech-act decomnposition: Evidence from particles in questions. *Linguistic Inquiry* 48:651–677.

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Disjuncts must be mutually excludable

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The following is odd, unless *American* can be contextually understood to imply 'not Californian':

(1) #Jake is an American or a Californian.

Hurford (1974, 410) uses (1) to argue that "The joining of two sentences by *or* is unacceptable if one sentence entails the other [...]" ('Hurford's Constraint' – HC). Stalnaker (1975, 278) equivalently hypothesized that "a disjunctive statement is appropriately made only in a context which allows either disjunct to be true without the other." ('Stalnaker's Constraint' – SC). This snippet raises novel issues with HC/SC looking at *n*-ary disjunction.

HC/SC, when stated as above, fail to explain (2):

(2) a. #Jake is an American, (or) a Canadian, or a Californian.
b. #Jake is a Californian, (or) a Canadian, or an American.

At least the parse in which *Canadian or Californian* forms a constituent does not violate HC/SC, since it neither entails *American* nor is it entailed by it. To account for (2), we could apply HC/SC in pairwise fashion to the set of all disjuncts. If disjunctions introduce sets of alternatives (Aloni 2003; Alonso-Ovalle 2004; Simons 2005; Alonso-Ovalle 2006, 2008), then grammar should have access to this set. A pairwise HC/SC, however, fails to rule out (3):

(3) a. #Sally left, (or) Sally didn't leave, or Jake left.
b. #Sally left, (or) Jake left, or Sally didn't leave.

The same effect arises with contextual entailment:

(4) #Sally is left-handed, (or) right-handed, or from Montréal.

We can generalize HC/SC instead as follows:

(5) Mutual excludability ('ME'):
Stalnakerian formulation:
Each disjunct must be contextually compatible with the negation of all others
Equivalent Hurfordian formulation:
No disjunct may contextually entail the disjunction of all others

ME has some interesting properties: It requires that disjunctions be maximally 'strengthenable', such that each disjunct *could* be the only true one. Disjunctive expressions are usually assumed to be strengthened in competition with conjunctive alternatives (Sauerland 2004, and Alonso-Ovalle 2008 for *n*-ary disjunction). Fox (2007) argues that strengthening excludes all innocently excludable alternatives, i.e. those excludable without arbitrary choices. ME guarantees that the exclusion

of any conjunctive alternative will be innocent (the reverse is not true, as (1) shows—IE is not context sensitive). In (3), however, J is incompatible with excluding both $S\&J$ and $not(S)\&J$, so neither is innocently excludable.

ME in fact permits to strengthen disjunctions by strengthening individual disjuncts with the negation of the others, without reference to conjunctive alternatives (see Singh 2008 for a related idea of exhaustifying individual disjuncts relative to a question under discussion.)

What could explain ME, especially in unstrengthened disjunctions? Stalnaker argues that SC follows from pragmatic constraints on assertability: "... the disjunction would be equivalent to the assertion of one of the disjuncts alone. So the disjunctive assertion would be pointless, hence misleading, and therefore inappropriate." Mayr and Romoli (2016) and Meyer (2015) develop related pragmatic accounts for HC/SC.

This rationale could explain (2). It is also compatible with the felicity of (6): the second conjunct is crucial to convey ignorance (Zimmermann 2000):

(6) Sally left or Sally didn't leave.

However, it is not clear that it can explain (3) and (4), where dropping a disjunct should not lead to the same meaning. Consider:

(7) a. Sally is left-handed or from Montréal.
    b. Sally is left-handed or right-handed.

Unlike (4), (7a) entails that if Sally is right-handed, she is from Montréal; and (7b) fails to convey ignorance about whether Sally is from Montréal. (3) and (4) pose a new puzzle for pragmatic accounts for HC/SC, or at least they do for Stalnaker's. It should also be noted that Zimmermann (2000) and Singh (2008) argue for constraints even stronger than ME, which would cast a different light on what might explain ME.

References

Aloni, Maria. 2003. Free choice in modal contexts. In *Proceedings of the Conference "SuB7 – Sinn und Bedeutung"*, ed. Matthias Weisgerber, 25–37. Konstanz, Germany: Universität Konstanz.

Alonso-Ovalle, Luis. 2004. Simplification of disjunctive antecedents. In *Proceedings of the 34th Annual Meeting of the North East Linguistic Society (NELS 34)*, ed. Keir Moulton and Matthew Wolf, 73–88. Amherst, MA: GLSA.

Alonso-Ovalle, Luis. 2006. Disjunction in Alternative Semantics. Doctoral Dissertation, UMass Amherst.

Alonso-Ovalle, Luis. 2008. Innocent exclusion in an alternative semantics. *Natural Language Semantics* 16:115–128.

Fox, Danny. 2007. Too many alternatives: density, symmetry and other predicaments. In *Proceedings of the 17th Semantics and Linguistic Theory Conference (SALT 17)*, ed. Tova Friedman and Masayuki Gibson, 88–111.

Hurford, James R. 1974. Exclusive or inclusive disjunction. *Foundations of Language* 410–411.

Mayr, Clemens, and Jacopo Romoli. 2016. A puzzle for theories of redundancy: Exhaustification, incrementality, and the notion of local context. *Semantics and Pragmatics* 9:7–1.

Meyer, Marie-Christine. 2015. Redundancy and embedded exhaustification. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 491–511.
Sauerland, U. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:367–391.
Simons, Mandy. 2005. Dividing things up: The semantics of *or* and the modal/*or* interaction. *Natural Language Semantics* 13:271–316.
Singh, R. 2008. On the interpretation of disjunction: asymmetric, incremental, and eager for inconsistency. *Linguistics and Philosophy* 31:245–260.
Stalnaker, Robert. 1975. Indicative conditionals. *Philosophia* 5:269–286.
Zimmermann, Thomas Ede. 2000. Free Choice disjunction and epistemic possibility. *Natural Language Semantics* 8:255–290.

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Constraints on non-conservative readings in English

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Recently, Ahn and Sauerland (2015, 2017) and Romero (2015) have observed that quantity expressions including percents, fractions and variants of *many* and *few* appear to violate Keenan and Stavi (1986)'s condition that natural language determiners are always conservative. While Romero (2015) has an account for 'reverse proportional' readings of bare *many* that preserves its basic conservativity, the more complex expressions considered here still present a challenge.

In Ahn and Sauerland (2017)'s example (1), *75 percent* is non-conservative because its truth conditions do not depend only on the quantity of the intersection of *women* and people *the company hired*.

(1) The company hired [75 percent WOMEN].
'75 percent of people hired by the company were women'

Wilson (2016, 2018) and Pancheva and Tomaszewicz (2012) discuss constructions in which a relative reading of the quantity superlatives, *most, least* and *fewest* is triggered by NP-internal focus. For English, Wilson (2018) has argued that *the most* in an expression like (2) forms a constituent. As a phrasal determiner, this would also violate the Conservativity Condition. Quantities of students accepted who were not *American students* are essential to the truth conditions of (2).

(2) The program accepted [the most AMERICAN students].
'The program accepted more Americans than students of any other nationality.'

Covert movement of the quantity expression out of the DP has been independently hypothesized to be responsible for generating such readings by Ahn and Sauerland (2015, 2017) for proportional measures and by Wilson (2016, 2018) for quantity superlatives. In English, extraction out of subjects is often barred, so we might expect these readings to be blocked in subject position. Indeed, Ahn and Sauerland (2015, 2017) observe that the non-conservative uses of *percent* (and its ilk) are degraded in sentences like (3a). I corroborate this judgement, but note that it is only true for sentences in the active voice. The passive example in (3b) is acceptable and has a non-conservative meaning.

(3) a. ??75 percent WOMEN work at this company.
b. 75 percent WOMEN were hired by the company.

This aligns with Chomsky's (2008) observation that extraction is easier out of passive subjects. The reverse proportional reading of uninflected *many/few* discussed by Romero (2015) does not exhibit subject/object asymmetry, but the definite-marked superlatives pattern with (3). The DP is only felicitous as a subject with focus inside the NP in passive sentences:

(4) a. ??The most AMERICAN students attend the program.

b. The most AMERICAN students were admitted to the program.

The importance of NP-internal focus varies between the two constructions. Focus on an element outside of the measured NP in (5) forces a conservative reading. But it does not have this effect in (6) which still compares numbers of women to non-women.

(5) THIS program accepted [the most American students].
'This program accepted more American students than any other program did.'

(6) THIS company hired [75 percent women].
'75 percent of people hired by this company were women'

The fact that the two quantity expressions compared here exhibit similar subject/object asymmetries in English supports the hypothesis that extraction of the quantity expression from the DP is required for the appearance of non-conservativity in general. However, the different effects of focus in the two types of constructions suggest that the mechanisms by which this movement gives rise to the readings are nevertheless distinct.

References

Ahn, Dorothy, and Uli Sauerland. 2015. The grammar of relative measurement. In *Proceedings of the 25th Semantics and Linguistic Theory Conference (SALT 25)*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 125–142.

Ahn, Dorothy, and Uli Sauerland. 2017. Measure constructions with relative measures: Towards a syntax of non-conservative construals. *The Linguistic Review* 34:215–248.

Chomsky, Noam. 2008. On phases. *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud* 45:133–166.

Keenan, Edward L, and Jonathan Stavi. 1986. A semantic characterization of natural language determiners. *Linguistics and Philosophy* 9:253–326.

Pancheva, Roumyana, and Barbara Tomaszewicz. 2012. Cross-linguistic differences in superlative movement out of nominal phrases. In *Proceedings of the 30th West Coast Conference on Formal Linguistics (WCCFL 30)*, ed. Nathan Arnett and Ryan Bennett, 292–302. Somerville, MA: Cascadilla Press.

Romero, Maribel. 2015. The conservativity of *many*. In *Proceedings of the 20th Amsterdam Colloquium*, ed. Thomas Brochhagen, Floris Roelofsen, and Nadine Theiler, 20–29.

Wilson, E. Cameron. 2016. Deriving the most internal relative reading. In *Proceedings of Sinn und Bedeutung 20*, ed. Nadine Bade, Polina Berezovskaya, and Anthea Schöller, 779–797.

Wilson, E. Cameron. 2018. Amount Superlatives and Measure Phrases. Doctoral Dissertation, City University of New York.

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Indexical shift meets ECM

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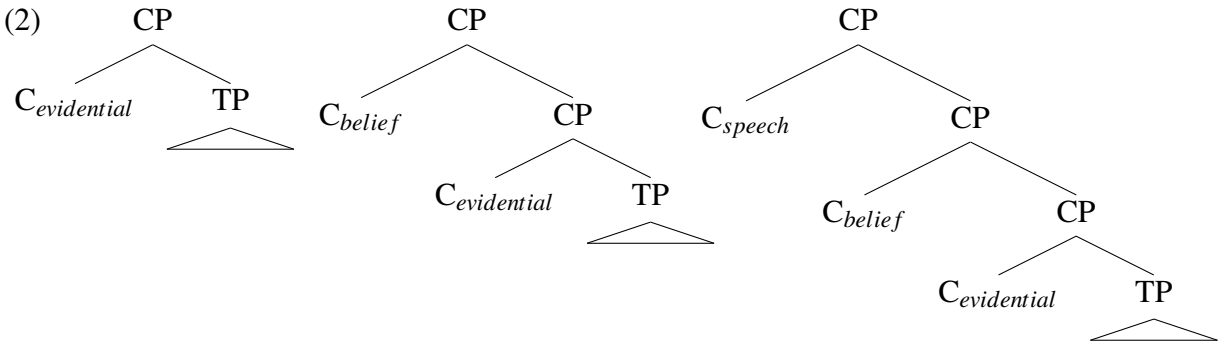
In Sauerland and Yatsushiro 2014, it is suggested that indexical shift in Japanese shows syntactic restrictions which are best implemented in a 'monster' approach where a context-shifter in the CP domain – 👻 – changes the context such that indexicals do not refer to the actual speech context but the context of the matrix clause (see also Anand and Nevins 2004, Anand 2006, Sudo 2012, Sundaresan 2012, 2018, Shklovsky and Sudo 2014, Podobryaev 2014, Messick 2016). The syntactic presence of such a 👻-shifter is further supported by the cross-linguistic distribution of indexical shift, which follows the implicational hierarchy in (1) (Sundaresan 2012, 2018, Deal 2017).

(1) speech > belief > evidential/knowledge
"if indexical shift is effected in the scope of a non-speech attitude predicate, it must also be effected in the scope of a speech predicate." (Sundaresan 2018: 29)

Sundaresan (2012, 2018) proposes, following the Cinque hierarchy, fine-grained CP structures with the containment relations as indicated in (2)—higher domains include lower domains, but lower domains do not necessarily project up to the full clausal structure (see also Krifka 2018 for specific semantic definitions creating similar containment relations).

(2)



The containment structures in (2) together with language-specific specifications for the location of the 👻-shifter derives the implicational nature of the hierarchy: if the 👻-shifter is tied to a lower CP-position, then it is necessarily present when higher projections are added; on the other hand, if it is tied to a higher position, it is not present in complements with a smaller CP-structure.

Interestingly, the distribution of ECM in Germanic follows a very similar hierarchy as shown in the table below (some of the data have been reported in Holmberg 1986, Thráinsson 1993, Lødrup 2002, 2008, Christensen 2007; a systematic summary is provided in Christopoulos and Wurmbrand To appear). As shown, the higher up a complement clause projects according to the hierarchy in (1)/(2), the less available ECM is.

Given that the ECM hierarchy seems to match the indexical shift hierarchy, it may be desirable to tie these hierarchies to a common property. As far as is known yet, there is no direct connection

	Icelandic	English	Swedish	German
I said her to have won.	✓	*	*	*
I believe her to have won.	✓	✓	*	*
I consider her to have won.	✓	✓	✓/?	*
I saw her win.	✓	✓	✓	✓

Table 2: ECM in Germanic

between the (im)possibility of indexical shift and the (im)possibility of ECM — the two properties operate largely independently of each other. However, I suggest that the common factor underlying the parallels in the cross-linguistic distribution of these properties is the hierarchical containment configurations in (2).

In many accounts of ECM, a core assumption is that ECM complements do not involve a CP. Suppose, this is achieved via deletion of CP-projections (e.g., to allow ECM with a speech predicate, all three CP-layers in (2) would have to be deleted). The generalization could then be stated that if a language allows omission of higher CP layers, it necessarily also allows omission of lower CP layers, but not vice versa.

A different approach is to allow ECM across CPs (see Wurmbrand 2019), by extending the A-domain of a clause to the CP. In this approach, the generalization is cast as following: if a higher CP-layer has A-properties (hence allowing ECM), lower CP-layers necessarily do too. In other words, the A-domain 'grows' upwards along the containment structure in (2). Depending on how such A-extension is formalized, the hierarchy, in particular the observation that the extension of the A-domain cannot skip CP-layers, may fall out automatically, or it may be related to a general *No A-after-A′* effect regulating structure building and syntactic dependencies such that A-phenomena derivationally always precede A′-phenomena.

References

Anand, Pranav. 2006. De de se. Doctoral Dissertation, MIT.

Anand, Pranav, and Andrew Nevins. 2004. Shifty operators in changing contexts. In *Proceedings of the 14th Semantics and Linguistic Theory Conference (SALT 14)*, ed. Robert B. Young, 20–37.

Christensen, Ken Ramshøj. 2007. The infinitive marker across Scandinavian. *Nordlyd* 34:145–163.

Christopoulos, Christos, and Susi Wurmbrand. To appear. Germanic infinitives. In *The Cambridge Handbook of Germanic Linguistics*, ed. Richard Page and Michael Putnam. Cambridge: Cambridge University Press.

Deal, Amy Rose. 2017. Shifty asymmetries: Universals and variation in shifty indexicality. Ms. University of California, Berkeley.

Holmberg, Anders. 1986. Word Order and Syntactic Features in the Scandinavian Languages and English. Doctoral Dissertation, University of Stockholm.

Krifka, Manfred. 2018. Semantic types of complement clauses: Propositions, Judgements, and Commitments. Talk given at *Ars Grammatica: Theorie und Empirie im Sprachvergleich: Schwerpunktthema Sachverhalts-/propositionale Argumente*, Mannheim, Germany.

Lødrup, Helge. 2002. Infinitival complements in Norwegian and the form - function relation. In

Proceedings of the 7th International LFG Conference (LFG'02), ed. Miriam Butt and Tracy Holloway King. Stanford, CA: CSLI Online.
Lødrup, Helge. 2008. Raising to object in Norwegian and the derived object constraint. *Studia Linguistica* 62:155–181.
Messick, Troy. 2016. The Morphosyntax of Self-ascription: A Cross-linguistic Study. Doctoral Dissertation, University of Connecticut.
Podobryaev, Alexander. 2014. Persons, Imposters, and Monsters. Doctoral Dissertation, MIT.
Sauerland, Uli, and Kazuko Yatsushiro. 2014. Japanese reported speech within the emerging typology of speech reports. In *Proceedings of Formal Approaches to Japanese Linguistics 7*, ed. Shigeto Kawahara and Mika Igarashi, 191–202. Cambridge, MA: MIT Working Papers in Linguistics.
Shklovsky, Kirill, and Yasutada Sudo. 2014. The syntax of monsters. *Linguistic Inquiry* 45:381–402.
Sudo, Yasutada. 2012. On the Semantics of Phi Features on Pronouns. Doctoral Dissertation, MIT.
Sundaresan, Sandhya. 2012. Context and (Co)reference in the Syntax and its Interfaces. Doctoral Dissertation, University of Tromsø/University of Stuttgart.
Sundaresan, Sandhya. 2018. An alternative model of indexical shift: Variation and selection without context-overwriting. Ms. University of Leipzig.
Thráinsson, Höskuldur. 1993. On the structure of infinitival complements. In *Harvard Working Papers in Linguistics, Vol. 3*, ed. Höskuldur Thráinsson, Samuel D. Epstein, and Susumu Kuno, 181–213. Cambridge, MA: Harvard University, Department of Linguistics.
Wurmbrand, Susi. 2019. Cross-clausal A-dependencies. In *Papers from the 54th Regional Meeting of the Chicago Linguistic Society (CLS 54)*, ed. Eszter Ronai, Laura Stigliano, and Yenan Sun. Chicago, IL: Chicago Linguistic Society.

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