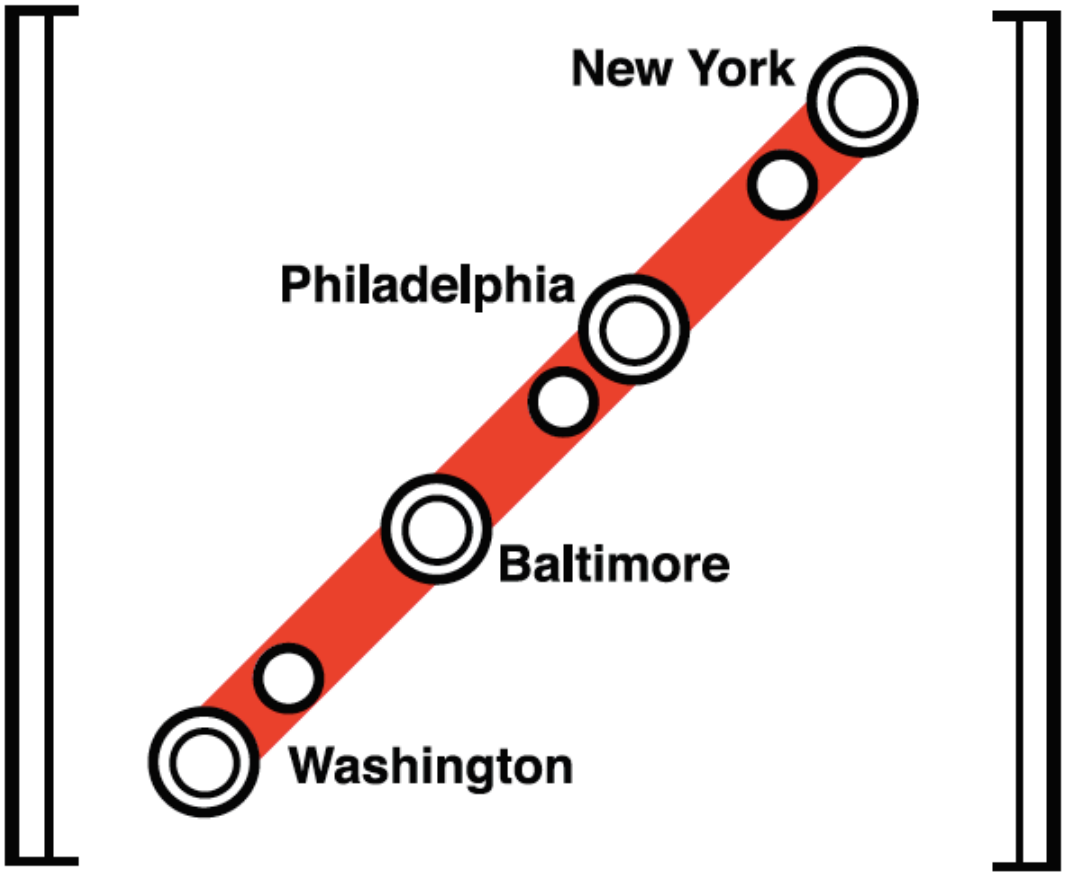
MACSIM 6



CITY UNIVERSITY OF NEW YORK
Graduate Center & Hunter College

October 1st, 2016

Schedule

9:30-10:00 Registration & welcome

10:00-11:30 TALK SESSION 1 (Hunter West 714)

Kajsa Djärv (Penn)
Case-alternations in copular sentences

Yağmur Sağ (Rutgers)
Turkish: An optional classifier language with plurals

WooJin Chung (NYU)
Decomposing permission and obligation: Evidence from Korean

11:30-11:40 BREAK

11:40-12:50 POSTER SESSION 1 (Hunter West, Faculty Dining Room – see next page for authors/titles)

12:50-1:50 LUNCH BREAK

1:50-2:50 TALK SESSION 2 (Hunter West 714)

Rachel Dudley (UMD)
Discovering the factivity of "know"

James Maguire (Georgetown)
What "need" lacks, that "lack" needs

2:50-3:00 BREAK

3:00-4:10 POSTER SESSION 2 (Hunter West, Faculty Dining Room – see next page for authors/titles)

4:10-4:20 BUSINESS MEETING (Hunter West 714)

4:20-4:30 BREAK

4:30-5:30 INVITED TALK (Hunter West 714)
Philippe Schlenker (IJN/CNRS/NYU)
Formal monkey semantics

5:30-7:00 DINNER (to be confirmed)

Acknowledgement MACSIM 6 is co-sponsored by the department of linguistics at the CUNY Graduate Center and the psychology department at Hunter College. We thank our colleagues Gita Martohardjono, Chris Braun, Sandeep Prasada, and especially Virginia Valian, for their help and support. The funds for MACSIM 6 were provided by the Graduate Center's Advanced Research Collaborative (ARC). We are grateful to Donald Robotham of the ARC for helping us bring MACSIM to CUNY this year. For administrative assistance we thank the staff at the Hunter College Central Reservations office, and Dean John Rose for approving our application to use Hunter facilities. For organizational help and advice, we thank Kyle Rawlins, Satoshi Tomioka, Kristen Syrett, Anna Szabolcsi, and E. Cameron Wilson. Special thanks go to Florian Schwarz, for his guidance, and to Zhuo (Cindy) Chen, for saving MACSIM 6.

Poster Session 1 (11:40-12:50)

Nattanun Chanchaochai (Penn). *Comprehension and production of personal reference terms in Thai-speaking children with autism spectrum disorders*

Karen Clothier and Akira Omaki (Johns Hopkins). *The interaction between native LF representations and input distributions in second language acquisition*

Myrto Grigoroglou and Anna Papafragou (UDel). *Children's informativeness in event descriptions*

Quinn Harr (UMD). *In what sense is "might" an epistemic modal?*

Najoung Kim (Johns Hopkins), Jung-Ho Kim (KAIST, South Korea), Maria K. Wolters (Edinburgh), Sarah E. MacPherson (Edinburgh), and Jong C. Park (KAIST, South Korea)
Approximating the semantic structures behind category fluency sequences

Songhee Kim (NYU). *Adverbial composition in the left anterior temporal lobe*

Sarah Kresh (CUNY). *A rating study of frozen scope in the English VP-internal locative alternation*

Augustina Owusu (Rutgers). *Actuality Entailment in Akan*

Milena Šereikaitė (Penn). *Strong versus weak definites in Lithuanian*

Sheng-Fu Wang (NYU). *Long-chong – a distributive and anti-distributive operator in Taiwanese*

Akitaka Yamada (Georgetown)
A Generalized Quantifier approach to embedded interrogative clauses

Poster Session 2 (3:00-4:10)

Tally Callahan (CUNY). *"Just", "only", and the two differences that keep them from being the same*

Lucia Donatelli (Georgetown). *Spanish deadjectival verbs: Argument structure and lexical derivation*

Masha Esipova (NYU). *Alternatives matter: Contrastive focus and presupposition projection in standard triggers and co-speech gestures*

Jeffrey Green (UMD). *Pragmatic control of rationale clauses*

Nick Huang (UMD). *Syntactic bootstrapping with minimal morphosyntactic cues: Learning Mandarin Chinese attitude verb meanings*

Jooyoung Kim (UDel). *Purposive interrogative adjuncts*

Jess H.-K. Law (Rutgers). *Experimental evidence for the discourse potential of bare nouns in Mandarin*

Yeonju Lee (CUNY). *NPI licensing and the role of phonological phrasing in Korean*

Ellie Pavlick and Chris Callison-Burch (Penn). *So-called non-subsective adjectives*

Drew Reisinger (Johns Hopkins). *Case and content: A cross-linguistic corpus study*

David Rubio Vallejo (UDel). *Negation, focus alternatives, and perfect tense*

ABSTRACTS

Title: "Just," "only," and the two differences that keep them from being the same

Researcher: Tally Callahan (CUNY Graduate Center)

On cursory inspection, the English exclusives *just* and *only* appear interchangeable in their parallel non-scalar and scalar usages. Many researchers (such as Beaver & Clark 2008) have considered them to be the same in form and function due to this interchangeability in many contexts; however, I argue that they differ, drawing upon data from NPIs and modals.

The two main differences that I have identified between *only* and *just* are their ability to license Negative Polarity Items (NPIs) and their interaction with modals. Consider the following examples (capital letters indicate prosodic prominence):

(1) John **only** ever [DISLIKED Sally]
only NPI Verb Phrase
Interpretation: At any time in the past, it was not the case that John had any stronger negative feelings for Sally than dislike (e.g. hate)

(2) #John **just** ever [DISLIKED Sally]
just NPI Verb Phrase
Interpretation: ???

(3) a. James can **only** eat BREAD
Interpretation 1: The one thing John can eat is bread
Interpretation 2: John is allowed to eat bread and nothing else if he wants to.
b. James can **just** eat BREAD
Interpretation : John is allowed to eat bread and nothing else if he wants to.
Blocked interpretation: The one thing John can eat is bread

Examples (1) – (3) demonstrate strong differences of interpretation between parallel sentences containing *only* and *just*. If they truly have the same structure and semantics as much of the prior literature has assumed, their behavior should reflect that. I've observed, however, that *only*'s behavior is more similar to negation in these two areas. I propose (following Jacobs 1980 and von Fintel & Iatridou 2007) that *only* is a case of "negative split" while *just* is a single semantic unit.

My proposed structure and semantics for *just* are in line with the structure and semantics commonly attributed to *only* under a classic Horn (1969) and Rooth (1985, 1992) account:

(4) $[\![\text{just}_C\ S]\!]^w$ is defined only if (i.e. presupposes that) $[\![S]\!]^w = 1$.
If defined, $[\![\text{just}_C\ S]\!]^w = 1$ iff $\forall S'(S' \in C)\ \&\ S \not\Rightarrow S' \rightarrow [\![S']\!]^w = 0$

My proposed semantics and structure for *only*, however, deviates substantially from this classic view. It is similar to the one proposed by von Fintel & Iatridou: *only* is composed of negation and a special exceptive (known as QUE, from the *ne…que* construction found in French). The main difference from their theory is that a different final scope of the NEG and QUE is proposed:

(5) $[\![QUE_D]\!]^w(x)(P)$ is defined only if (i.e. presupposes that) $P(x) = 0$ in w.
If defined, $[\![QUE_D]\!]^w(x)(P) = 1$ iff $\forall y(y \in D\ \&\ y \neq x \rightarrow P(y) = 1$ in w)
D = the set of alternatives to the focus associate

$[\![QUE_D]\!]$ takes two arguments (x and P). In a world (as designated by the superscript w), $[\![QUE_D]\!](x)(P)$ is defined only if P(x) is false. If defined in that world, $[\![QUE_D]\!](x)(P)$ is true if and only if for all y, if y is in the set of alternatives to the focus associate(D) and y is not the same as x, then P(y) is true in that world. This semantic entry requires that the QUE-phrase undergo quantifier raising (QR) to be interpretable. In (5), [QUE Beth] is of type <<e,t>t> (the type of a

generalized quantifier). Since generalized quantifiers are only interpretable at clausal nodes, it must raise. This results in the following structure, which deviates from von Fintel & Iatridou, since QUE now scopes above NEG.:

(6) [[QUE$_D$ Beth][λx.John [NEG likes x]]]

One crucial difference between my proposed semantics for *just* and *only* is that there is no negation in the structure of *just.* This lack of negation is the key to the divergence of the two exclusives regarding NPI-licensing and scope relations when interacting with modals (see below). Strawson Downward Entailment (von Fintel 1999) has been utilized in the past to account for *only*'s ability to license NPIs, but *just* also fulfills the requirements for SDE, which would anticipate (2) to be acceptable. With negation as part of *only*'s composition, we can go back to standard Downward Entailment as an NPI licensing environment, which would avoid this problem. If negation is a core part of *only,* then its negation-like interaction with modals is expected (e.g. the modals *may* and *can* both allow negation/*only* to scope above or below them), in contrast to how *just* interacts with the same modals (e.g. the modals *may* and *can* most saliently scope above *just*):

(7) Negation (NOT)
  a. James may not eat bread. negation > modal OR modal > negation
  b. James can not eat bread. negation > modal OR modal > negation

(8) Exclusive ONLY
  a. James may only eat [bread]$_F$. only > modal OR modal > only
  b. James can only eat [bread]$_F$. only > modal OR modal > only

(9) Exclusive JUST
  a. James may just eat [bread]$_F$. modal > just (?? just > modal)
  b. James can just eat [bread]$_F$. modal > just (?? just > modal)

My current research takes this theory and seeks to gain more supportive evidence from original experimental data. Such experimental work may prove extremely enlightening, since much of the work on exclusives has been purely theoretical. The experiment will gather acceptability judgments from online participants on sentences containing negation, *only*, and *just*. All experimental sentences will have both an NPI and a non-NPI version. I hypothesize that overall the sentences containing *only* + NPI will be found more acceptable than the sentences containing *just* + NPI. The results I gain from my experiment will further linguistic understanding of the NPI-licensing abilities of *only* and *just* in English.

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Comprehension and Production of Personal Reference Terms in Thai-speaking Children with Autism Spectrum Disorders

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Background: Children with autism spectrum disorders (ASD) have been observed to have difficulties with pronouns, as compared to fixed identity, especially in the form of pronoun reversal errors between 'I' and 'you' (See, for instance, Bartak & Rutter 1974; Charney 1980b; Chiat 1982; Fay 1979; Kanner 1944; Loveland 1984). Most of studies on the topic focused on the English language, leaving gaps on how such difficulties would manifest themselves in other languages with a personal reference system with higher complexity. Personal reference system in Thai can be one example of being highly complex. It involves not only personal pronouns, but also kin terms, occupational titles, and personal names (Bandhumedha 1971; Bandhumedha 2011; Cooke 1968; Iwasaki & Ingkapirom 2009 among others). Moreover, adult native speakers of Thai may also use *deictic shifting*, reversing 'I' and 'you' by default while talking to young children, e.g., a sentence like *'Do I want ice cream?'* can be used for asking whether the child hearer wants ice cream or not. This study attempts to investigate the comprehension and production of various personal reference terms in Thai-speaking children with ASD compared their typically-developing (TD) controls.

Participants: Children with ASD and their age-, gender- and non-verbal IQ matched controls were recruited from Kasetsart University Laboratory School, Center for Educational Research and Development and La-or Utis Demonstration School (See Table 1 for details). All the children with ASD had previously received a clinical diagnosis with a proper medical record prior to attending each school. The non-verbal IQ was tested using the Ravens Standardized Progressive Matrices (Raven et al. 2003, 2004).

Table 1 Participant Information

	ASD *N*=30	TD *N*=68
Male *N*	25	55
Age *M*	9;10	9
Age *Min*	6;7	6;1
Age *Max*	12;2	12;8
Ravens IQ *M*	30.53	36.93
Right-handed	28	65

Design: The main design of this project is the adaptation of the Fishing Task (Girouard et al. 1997; Legendre et al. 2011) which will test the list of eight Thai personal reference terms (one first-person, four second-persons (three for each participant, depending on their gender), and three third-persons). The order of items was created according to Latin Square design. In the version of the task in this study, there were five participants, including the author, the child (tested individually), a cardboard boy, a cardboard girl, and a cardboard monkey. In the beginning of each block, the children were first asked to name pictures of commonly known animals and objects. The picture cards were then distributed to each participant. For the production task, the children were asked *'Who is holding X?'*. The comprehension task involves the familiarization phase using the question *'What is name of X holding?'*, while the test phase changed *name of X* to different pronouns. The scoring sheets were designed and created in advance to ease the online coding of the answers.

Preliminary Analysis of the Results: For the comprehension task, the results show that children with ASD performed significantly less accurate than their TD controls as seen in Figure 1. The third-person reference terms in both of the participant groups yielded the least accurate results. The pattern of accuracy for ASD and TD groups are reversed, i.e., children with ASD performed worse on fist-person reference terms than on the second-persons, while TD children performed in the opposite direction. Since personal reference terms in Thai have many internal dimensions, this presentation explores other possible factors that contribute to the accuracy rate. Results from the production task along with errors analyses for both tasks will also be presented.

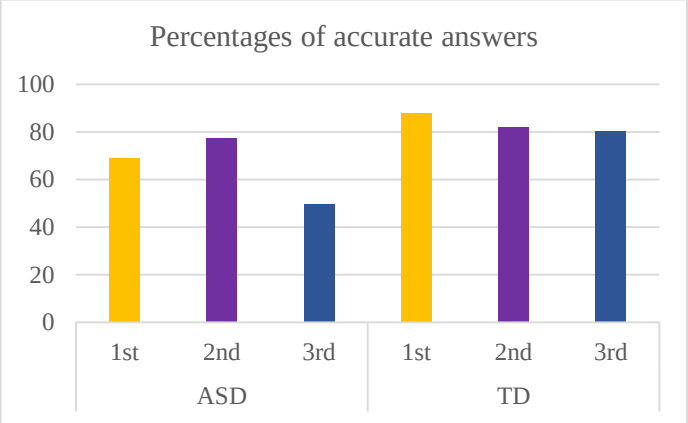

Figure 1. Percentages of accurate answers of different persons of personal reference terms across groups.

Discussion and Extensions: Based on Heim (1991)'s theory of lexical presuppositions and the results from Legendre et al. (2011), it is predicted that third-person pronouns yield lower performance than other persons because third-person pronouns lack lexical presuppositions, but rather contain implicated presuppositions, inferring that the addressee is non-participant. The preliminary analysis of the results in this study seems to support the theory since both of the participant groups performed worst in the third-persons, although children with ASD performed in a much lower accuracy rate. The analysis will also extend to the effect of deictic shifting in Thai and the properties of the personal reference terms being content or function words on the acquisition of personal reference terms in Thai. Comparisons between the production and comprehension task results will also be discussed.

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Decomposing Permission and Obligation: Evidence from Korean

WooJin Chung

Introduction This paper investigates the idea that the Korean strategy for expressing permission and obligation can be insightfully modeled using the logical technique of deontic reduction (Anderson 1956). Deontic reduction utilizes a special proposition δ and a conditional to characterize deontic concepts, where δ has previously been glossed as 'the good thing', 'all things are as required', or 'OK'. In deontic reduction, obligation is formulated as follows:

(1) OB A $=_{def} \Box(\delta \rightarrow A)$ 'It is obligatory that A'

There are two distinct notions of permission in deontic reduction: *weak* permission and *strong* permission. Weak permission is taken as a dual of obligation, as in Kratzer (1991). It asserts that an action is not prohibited. On the other hand, strong permission asserts that an action is explicitly ok. The definition in (2b) can be informally read as 'it is OK if A'.

(2) a. PE_{weak} A $=_{def} \Diamond(\delta \wedge A)$ 'It is *weakly* permitted that A'
b. PE_{str} A $=_{def} \Box(A \rightarrow \delta)$ 'It is *strongly* permitted that A'

Strong permission has been useful in analyzing free choice permission (Asher and Bonevac 2005). More importantly, distinguishing strong permission from weak permission implies that we need an articulated system where things can be neither permitted nor forbidden (von Wright 1983). There is a "deontic gap", and absence of prohibition does not imply permission unless it is explicitly stated so.

What has not been extensively studied is how the aforementioned articulated system relates to possible world semantics. This paper presents Korean data which provides a glimpse into it.

Data Barker (2010) notes that the naturalness of deontic reduction can receive empirical support from Japanese modal expressions because they are expressed in the form of a conditional construction. Korean also utilizes conditionals in conveying deontic modality: expressing obligation requires an *only if*-conditional, whereas permission is expressed via an *even if*-conditional. The antecedent of the conditional contains the proposition to be evaluated, and the morpheme *toy* appears in the consequent.

(3) John-un maykcwu-lul masi-**eya** **toy**-n-ta.
John-$_{TOP}$ beer-$_{ACC}$ drink-**only if** TOY-PRES-DECL
'John must drink beer.'
(Lit.) 'Only if John drinks beer, it is OK.'

(4) John-un maykcwu-lul masi-**eto** **toy**-n-ta.
John-$_{TOP}$ beer-$_{ACC}$ drink-**even if** TOY-PRES-DECL
'John may drink beer.'
(Lit.) 'Even if John drinks beer, it is OK.'

The significance of the provided data lies in that they let us probe deeper into the "interior" of deontic modal expressions. In many languages, deontic modality is conveyed by an auxiliary or an adverbial (e.g., English), so it cannot be further decomposed. But in Korean, there is morphological evidence that deontic modality consists of more primitive elements, one of which is a conditional and the other is *toy*. The question is whether the compositional semantics of these primitive elements is compatible with the preexisting analysis of deontic modality suggested in the literature. It is shown that the analysis of obligation is indeed compatible, but how permission is expressed in Korean suggests that there is an alternative way to "explicitly" grant permission.

Proposal I propose that Korean *toy* corresponds to δ in deontic reduction. The semantics of *toy* is provided in (5). The BEST operator selects the most ideal worlds, given the modal base and the ordering source (Portner 2009). The proposal implies that there is a division of labor between accessing the ideal worlds (*toy* 'δ') and relating those worlds to a given proposition (conditionals).

(5) $[\![\text{toy}]\!]^{w,f,g} = [\![\delta]\!]^{w,f,g} =_{def} \text{BEST}_{g(w)}(\cap f(w))$,
where f is a circumstantial modal base and g is a deontic ordering source (Kratzer 1991)

The meaning of permission and obligation can be derived from the compositional semantics of *toy* and the conditional morphemes.

Deriving Obligation I assume that *if*-conditionals are strict implications for simplicity, but the proposed analysis does not rely on this specific view of conditionals. As for Korean *-(e)ya* 'only if', I will treat it as a converse of the *if*-conditional.

(6) $[\![\text{-(e)ya}]\!]^{w,f,g} =_{def} \lambda p_{<s,t>}\lambda q_{<s,t>}.\ \forall w'\text{: } q(w') = 1 \rightarrow p(w') = 1$

The meaning of obligation naturally follows from the semantics of *–(e)ya* 'only if' and *toy* 'δ'. The formula in (7) asserts that all ideal worlds are worlds in which John drinks beer.

(7) $[\![\ (3)\ ]\!] = [\![\text{-(e)ya}]\!]^{w,f,g}([\![\text{John drink beer}]\!]^{w,f,g})([\![\text{toy}]\!]^{w,f,g})$
$= [\![\text{-(e)ya}]\!]^{w,f,g}([\![\text{John drink beer}]\!]^{w,f,g})([\![\delta]\!]^{w,f,g})$
$= \forall w'\text{: } BEST_{g(w)}(\cap f(w))(w') = 1 \rightarrow \text{drink(John)(beer)}(w') = 1$

Interpreting Permission The analysis of the Korean obligation example suggests that the proposed semantics of *toy* 'δ' is on the right track. However, if we continue to assume that *toy* 'δ' corresponds to a set of ideal worlds, two issues arise in interpreting permission. First, what (2b) would assert is that all *A*-worlds are ideal worlds, but it is not clear whether this interpretation can be understood as explicitly granting permission. Another problem is that on the contrary to (2b), Korean (and Japanese) permissions do not involve an *if*-conditional but rather an *even if*-conditional.

I claim that the additional *even* component is essential in conveying the meaning of permission. Specifically, I argue that the consequent-entailment property of *even if* (Bennett 1982) guarantees that the consequent, *toy* 'δ', is true in (4). As a result, the sentence conveys that *δ* is true in consideration of John's drinking beer. I suggest that this is what it means to "explicitly" grant permission, which is distinct from asserting the absence of prohibition.

The consequent-entailment property of *even if* refers to a phenomenon where the consequent of an *even if*-conditional is entailed in certain environments. An example is given in (8).

(8) Even if John drinks beer, Mary will be happy $\rightarrow_{entails}$ Mary will be happy

Guerzoni and Lim (2007) argue that the *even* component associating with a verum focus (AFF) is responsible for the consequent-entailment. The focus semantic value of a verum focus contains only the following two alternatives: the focused constituent itself and its logical opposite. Accordingly, the focus semantic value of (9a) consists of two propositions: 'If John drinks beer, Mary will be happy' and 'If John doesn't drink beer, Mary will be happy'.

(9) a. Even if [$_F$ AFF] John drinks beer, Mary will be happy.
b. Assertion: 'If John drinks beer, Mary will be happy.'
c. Additivity: $\exists q \in C\ [q \neq p \wedge q(w) = 1]$, *where C = { 'If John drinks beer, Mary will be happy', 'If John doesn't drink beer, Mary will be happy'}*

The additivity presupposition of *even* requires that at least one of the alternatives distinct from the asserted proposition is true. Given that there are only two focus alternatives of (9a), the additivity presupposition requires that "If John doesn't drink beer, Mary will be happy" is true. Thus the two alternatives are both true, and it can be inferred that Mary will be happy regardless of John's drinking.

Guerzoni and Lim's analysis carries over to the Korean permission example schematized in (10). The only difference between (9) and (10) is that the consequent has been replaced with *toy* 'δ'. Since there are only two focus alternatives and one of them is the asserted proposition, the additivity presupposition requires that the other alternative, "If John doesn't drink beer, δ", is true. Consequently, it can be inferred that *δ* is true regardless of John's drinking beer.

(10) a. Even if [$_F$ AFF] John drinks beer, δ.
b. Assertion: 'If John drinks beer, δ.'
c. Additivity: $\exists\, q \in C\ [q \neq$ 'if John drinks beer, δ' $\wedge\ q(w) = 1]$,
where C = { 'If John drinks beer, δ', 'If John doesn't drink beer, δ'}

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The interaction between native LF representations and input distributions in second language acquisition

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A large body of word learning research has focused on how learners acquire the meanings of novel nouns with set referents, but much less work has investigated the learning mechanism for anaphoric expressions whose referents vary across contexts. For example, in the sentence *Bill said that John fanned him/himself/self*, *him* can refer to *Bill* but not *John,* and *himself* can refer to *John*, but not *Bill*. Anaphoric expressions can also vary cross-linguistically, e.g. the Japanese long-distance (LD) reflexive, *zibun* (=*self*, above) (Huang, 2000). The possible interpretations of LD reflexives are a superset of pronouns and local reflexives (e.g Manzini & Wexler, 1987), raising the question of how learners can acquire the full set of interpretive possibilities for an LD reflexive from more or less ambiguous input. Since the interpretation of anaphoric expressions is constrained by the structure of the syntax and context (c.f. Buring, 2005), this study assumes a learning mechanism capable of using LF representations and tracking the distribution of interpretations they give rise to in the input. In a novel artificial language-learning paradigm, pictures of either transitive (non-local interpretation) or reflexive (local interpretation) events were paired with sentences containing either a novel pronoun, local reflexive or LD reflexive; i.e. the picture served to disambiguate between the two interpretive possibilities for the LD reflexive. The distribution of these interpretive possibilities across instances of the LD reflexive was manipulated in three different conditions: one where 80% of the interpretations were unambiguously local; one where 80% of the interpretations were unambiguously non-local; and one where the local and non-local interpretations were equally probable. Looking across these three conditions, both native English speakers and native Japanese speakers reproduced the distribution of interpretations from their learning input. However, at an individual level, Japanese speakers were able to differentiate the LD reflexive from the local reflexive and pronoun, *but only* when the local interpretation was more prevalent in the input. This finding suggests that information derived from the input distributions interacts with the learners' native language knowledge, and possibly more general processing constraints, to determine learning outcomes.

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Toward a Typology of Copular Sentences

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This paper argues that copular constructions [CCs] in Polish and Swedish vary systematically with respect to interpretation, Case, and type of copular element (verbal/pronominal).

Background: In Polish, verbal CCs obligatorily take Instrumental (Inst) Case on the postcopular NP (NP2), whereas pronominal CCs require Nominative (Nom) Case on NP2 (Citko, 2008). This has been argued to track the predication/equation contrast. Relatedly, Sigurðsson (2006) argues that in Swedish, equative CCs allow only Nom (1a), whereas *assumed identity* CCs allow both Nom and Accusative (Acc) Case (1b).

(1a) Han *är* inte han/*honom.
He is not he.nom/*acc.
'He isn't him.'

(1b) Jag låtsas inte vara dig/du.
I pretend not be you.acc/nom.
'I don't pretend to be you.'

Proposal: Following Citko (2008) and Adger & Ramchand (2003), we argue that in both Swedish and Polish, the semantic contrast underlying the morpho-syntactic alternation in (1), is that between predication with respect to an eventuality versus non-eventive predication. That is, Polish pronominal CCs with Nom Case are infelicitous with clearly eventive predicates, but improve when coerced into non-eventive readings. Similarly in Swedish, eventive contexts require Acc Case (2a), and non-eventive ones Nom (2b). The apparent alternation stems from surface ambiguous contexts, such as that in (1b).

(2a) På semestern var jag dig/??du.
On vacation was I you.acc/??nom
'On my holiday was I you.'

(2b) I mitt förra liv var jag du/??dig.
In my last life was I you.nom/??acc
'In my last life, I was you.'

To derive the syntactic facts, we propose two heads: $Pred_e^o$ which takes an eventive complement (NP, AP, PP, VP), and assigns an Initiator *ɵ*-role to NP1, and thus Predicative Case (Spelled Out as Inst or Acc); and $Pred^o$ which takes a property denoting NP-complement, does not assign such a *ɵ*-role to NP1, and thus cannot assign Case. Since NPs have a [uCase] feature, NP2 in (2b) receives Nom from T^o inside a lower clause—by hypothesis, a silent Free Relative clause (cf. Heycock & Kroch (1999), Adger & Ramchand (2003), Pancheva (2009)), as a 'last resort'.

Predictions: This analysis predicts that Acc/Inst NP2s should behave syntactically like direct objects, whereas Nom NP2s should pattern like overt Relative Clause subjects. This is borne out: For instance, Inst/Acc, but not Nom NP2s are available for extraction (3).

(3) [Dig/*du]$_i$ vill jag inte vara t$_i$.
you.acc/*nom want I not be.inf t.
'You, I do not want to be.' (Sigurðsson 2013)

Finally, we expect that the Nom NP2 (underlyingly a silent Free Relative clause) should be ambiguous between a 'universal' and a 'singular definite' interpretation (Jacobson, 1995). This, we argue, is what underlies the semantic contrast between 'true' Equatives (*John is Superman.*) and 'inherent property' predication (*John is the nicest person I know.*). We provide a detailed discussion of the semantic derivation and discuss further syntactic data to support this analysis.

Conclusion: We predict that the following syntactic and semantic properties will pattern together cross-linguistically: i. event semantics, verbal copula, Inst/Acc Case; ii. non-eventive (inherent property/equative) semantics, pronominal copula, Nom Case.

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Spanish Deadjectival Verbs: Argument Structure and Lexical Derivation

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Introduction: Spanish deadjectival verbs have been compared to adjectival resultative secondary predicates found in other languages both for their argument structure and result interpretation. Of interest in such comparison is the fact that Spanish disallows the latter construction syntactically, though alternative constructions exist that allow equivalent semantic interpretations. The current proposal focuses on Spansih deadjectival verbs in light of these investigations and argues the following: 1. that Spanish deadjectival verbs share the same underlying structure as adjectival resultative secondary predicates found in such languages as English; 2. that there exists a difference in interpretation of the result state implied by the two constructions; and 3. that this difference arises as a result of morphological conflation and the interpretation of PATH as BECOME.

Background: Spanish deadjectival verbs are formed on an adjectival base, attributing the verb's internal argument with the state denoted by the adjective. Deadjectival verbs exhibit both causative (1a) and inchoative (1b) structures:

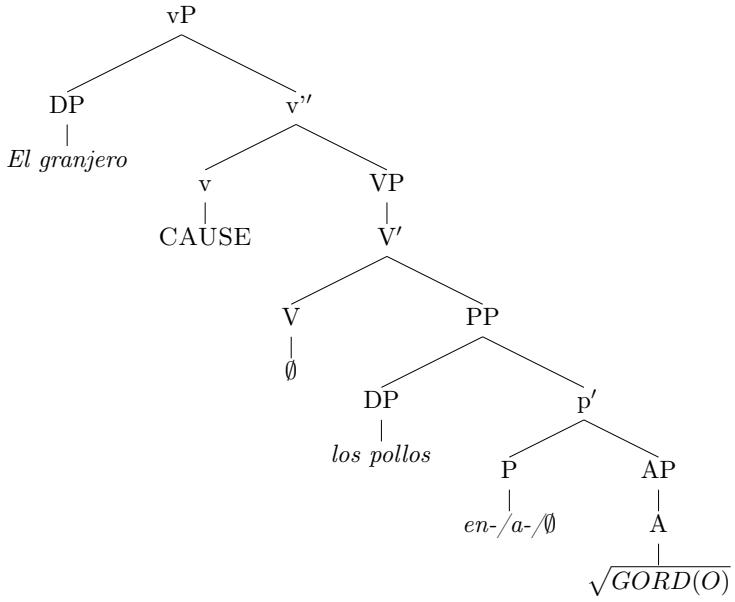
1 a) *El granjero engordó (a) los pollos.*
'The farmer fattened the chickens.'

b) *El granjero engordó durante el invierno.*
'The farmer got fat(ter) during winter.'

Both structures are argued to designate a change of state , i.e. a transition of the entity affected by the event from one state to another specific state, its semantic characteristics being intimately related to the property of the adjectival base (Honrubia 2011).

Current Study: Causative and inchoative forms of deadjectival verbs derive from a verbal root linked to which an invisible CAUSE or INCHOATIVE suffix is respectively attached. In this way, the structures are subtly but not substantially different: the external argument of causative forms is triggered by the cause suffix, resulting in structure 2; no such triggering occurs with the inchoative suffix, resulting in a structure where *el granjero* occupies the place of *los pollos*.

2



The verb in question selects for a PP complement with a specific PATH denotation (discussed below). The DP internal argument generates in Spec PP, and the AP generates as a complement of the preposition. The adjectival root conflates with the prepositional head; such derivation must be invisible to the syntax. Movement of the conflated A-P compound is triggered by the need for the null verb to have a phonological matrix and receive Full Interpretation at PF.

In line with Honrubia (2011), four possible argument structures are noted to exist for Spanish deadjectival verbs. All can be understood as aspectual variations of the same attributive structure that affects either the subject or the direct object. The structures include: a. *X BE Adj.*; b. *X BEHAVE as Adj.*; c. *X BECOME Adj.*; and d. X CAUSE [Y to BECOME Adj.]. The result interpretation implied by the verb is a product of conflation in the sense of Baker (2003), by which the verb's argument structure is dependent upon the semantic contributions of both the conflated adjective and preposition during the morphological derivation.

Contra Molina et al. (1999), I would like to suggest that the result interpretation for Spanish deadjectival verbs is not equivalent to the result interpretation for adjectival resultative secondary predicates found in other languages. This observation is supported by corpus data from Wechsler (2012), who finds a correlation between the use of maximal endpoint adjectives and the absence of 'make' as an overt causative in resultative secondary predicate constructions in English, suggesting a unique causal relation implied by the construction and the adjectives they allow.

I instead suggest that the aspectual variation noted in Spanish deadjectival verbs results from the A-P compound, and more specifically a PATH implicated by P. Following Jackendoff (1983) and Pantcheva (2011), the preposition involved in Spanish deadjectival verb constructions indicates a type of PATH, whose GOAL or LOCATION resides in the adjective, now understood as denoting PLACE. Aspectual variation must thus reside in the different type of PATH implied, which most basically may be understood as 'become A-er' and suggests movement along a property scale.

Conclusion and Future Directions The current study demonstrates that conflation is necessary in lexical derivation for Spanish deadjectival verbs to acquire the interpretation of 'become A-er' rather than 'become maximally A,' as opposed to the latter interpretation found in adjectival resultative secondary predicates found in other languages.

Work remains to be done on the specific contributions of the preposition and the adjective via conflation and verb derivation to further specify the nature of PATH implied by P as well as restrictions on A related to maximal endpoints (Wechsler 2012); whether observations on total-partial and relative deadjectival verbs in English as noted by Kearns (2005) hold for Spanish; and finally how A may best be understood as PLACE.

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Discovering the factivity of *know*

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Think and *know* both express beliefs, but differ in "factivity": (i) *think* can report false beliefs (1a); (ii) *know*'s complement is presupposed to be true (1b) [1]. How do children figure out that *know* is factive but *think* isn't? We use corpus methods to examine input with the verbs and determine which distributional cues might signal factivity. We find that direct cues to factivity are sparse: (i) *think* is rarely used in contexts where the complement is false; (ii) *know* is rarely used in contexts where its complement is presupposed. However, we find that *think* and *know* differ greatly in how speakers use them in conversation: (iii) *know* is used to ask (2a) or answer questions (2b), whereas *think* is used to make weak assertions (3) [2,3]. This suggests that noticing the goals of speakers who use the verbs might provide a less noisy signal than observing what speakers presuppose in using the verbs.

Figures and examples

(1) a. John thinks that Mary is home, but she's actually at work (*think* = non-factive)
b. # John knows that Mary is home, but she's actually at work (*know* = factive)

(2) *Know* is used for indirect requests for information (a) or to answer questions (b):
a. Do you know what time is it? (intending: What time is it?)
b. Q: When is bedtime? A: I don't know (intending: I don't have an answer)

(3) *Think* used for indirect, or weak, assertions:
a. I think it's 3 o'clock (intending: It is 3 o'clock.)
b. I think it's time for bed (intending: It's bedtime)

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Alternatives matter: contrastive focus and presupposition projection in standard triggers and co-speech gestures

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Non-projection under Contrastive Focus (CF): It has been noted in the literature that standard presuppositions, which routinely project from downward-entailing environments, fail to do so when the trigger is contrastively focused (see, e.g., Simons et al. 2016 for factive verbs):

(1) a. John doesn't know that Mary is pregnant.
→ Mary is pregnant.
b. John doesn't [**know**]$_F$ that Mary is pregnant, he only [**thinks**]$_F$ that she is.[1]
↛ Mary is pregnant.

Schlenker (2015; 2016) argues that co-speech gestures give rise to assertion-dependent conditional presuppositions (*cosuppositions*) of the form *if p, g*, where *p* is the verbal content the gesture co-occurs with and *g* is the content of the gesture (2a). Such cosuppositions also don't project under CF, in particular when the contrasted gesture-word clusters have identical verbal content and differ in their gestural content only (observation due to Rob Pasternak (p.c.)); in that case the gestures seem to make an assertive contribution (2b).

(2) a. None of these ten soldiers killed$^{\text{SHOOT}}$_  himself.
→ For each of these ten soldiers, if he was to kill himself, he would shoot himself.

b. None of these ten soldiers [**killed**]$^{\text{SHOOT}}{}_F$ himself, each of them [**killed**]$^{\text{STAB}}$_  $_F$ himself.
↛ For each of these ten soldiers, if he was to kill himself, he would shoot himself.

Proposal: I argue that CF itself is not responsible for non-projection either in the spoken or in the mixed modality, but rather whether or not a presupposition projects under CF on the trigger depends on the nature of the relevant alternatives. To account for the data, I propose that when we encounter CF on a presupposition trigger, we check all the relevant local alternatives (i.e. propositions stripped of negation, question and modal operators, etc.) against the following principle:

(3) *Alternative Assertability Principle (AAP)*
All relevant Focus alternatives should be assertible with respect to the same common ground.

If a presupposition of one of the alternatives hinders assertability of at least one other alternative, it doesn't project and should be treated as part of the assertion instead. The process responsible for making presuppositional content assertive can be local accommodation as a last resort operation (e.g., as implemented in Heim 1983 or Schlenker 2009).

More data: Let us take a closer look at the empirical motivation of the proposal. I primarily focus on conditional examples in this section (with one exception), because, unlike examples with negation, they would be harder to analyze by appealing to a metalinguistic interpretation. As illustrated in (1b), CF on *know*, whose most salient contrastive alternative (overt in (1b)) is *think* or *believe*, hinders presupposition

[1] A note on notation:
- A word written in bold (**word**) indicates prosodic and/or gestural contrastive focus marking ((L+)H* pitch accent and lengthening on the stressed syllable, hyper-articulation, raised eyebrows, head nod, acceleration and/or increased amplitude of the gesture, etc.).
- A subscript $_F$ on a bracketed expression (verbal or mixed) indicates that it is semantically in focus.
- I indicate co-occurrence of a verbal expression with a gesture as follows: [verbal expression]$^{\text{GESTURE}}$.
- I illustrate new gestures with pictures after an underscore, e.g., [verbal expression]$^{\text{GESTURE}}$_picture.

projection. Similar effect obtains for *stop*, when its salient alternative is *start*, which has a reverse presupposition, but does not obtain, when its alternative is *take a break from*, which has the same presupposition as *stop*, or *hate*, which triggers no presupposition:

(4) a. If John [**stopped**]$_F$ smoking, I'll give you $10, but if he [**started**]$_F$ smoking, I won't.
↛ John used to smoke.
b. If John [**stopped**]$_F$ smoking, I'll give you $10, but if he's just [taking a **break**]$_F$ from smoking, I won't.
→ John used to smoke.
c. Although John didn't [**stop**]$_F$ smoking, he began to [**hate**]$_F$ smoking.
→ John used to smoke.

In co-speech gesture examples non-projection obtains (at least) when the verbal content across the alternatives is the same and the gestural content is contrastive (5a), but does not obtain when the contrast is due to the verbal content (5b):

(5) a. If you bring me a [**beer**]$^{\text{SMALL}}$_  $_F$, I'll finish it, but if you bring me a [**beer**]$^{\text{LARGE}}$_  $_F$, I'll have to share it with someone.
↛ If you bring me a beer, it will be a small/large one.
b. If you bring me a [**beer**]$^{\text{LARGE}}{}_F$, I'll finish it, but if you bring me a [**cocktail**]$^{\text{SMALL}}{}_F$, I'll have to share it with someone.
→ If you bring me a beer, it would be large; if you bring me a cocktail, it would be small.

Applying AAP: AAP applies straight-forwardly to cases like (4a), where alternatives have contradictory presuppositions, because the same common ground cannot entail both *p* and *not p*. Examples with *know* vs. *think* are a bit trickier. While *think that p* often gives rise to an anti-factive inference across the board, typically attributed to some version of *Maximize Presupposition* (e.g., Sauerland 2008), I argue that in cases like (1b) the inference is much stronger and something else is at play. Namely, CF is interpreted exhaustively with respect to the salient alternatives, and, thus, the alternative with *think* is strengthened by negating the alternative with *know*. Assuming the two have the same assertive content and differ only in their presuppositional content, asserting *think that p* while negating *know that p* requires negating the presuppositional content of the latter: *p' and not pp'*, where *p* is the presuppositional content and *p'* is the assertive one, is a contradiction (since it amounts to *p' and p and not p'*) while *p' and not (p and p')* is not. The presupposition of *know* thus has to be treated as part of the assertion.

A similar logic can be applied to gestural examples like (1b) and (5a), in which the assertive (verbal) content of the alternatives is identical, and it is their presuppositional (gestural) content that is contrastive: *pp' and not qp'* (≈ *p and q and p' and not p'*) is a contradiction while *p and p' and not (q and p')* isn't. Such gestural examples can also be compared to examples with contradictory presuppositions, like (4a), since, while the inferences triggered by the contrastive gestures in the examples above are not of the form *p* and *not p*, they are mutually exclusive — in principle (due to world knowledge), or interpreted as such within the given context. It would be good, thus, to look at examples with contrastive gestures triggering non-mutually-exclusive inferences (such as (4c) in the spoken modality). Such examples, however, are hard to construct, and I leave exploration of them for future research.

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Pragmatic control of rationale clauses

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Constraints on reference play an important role in our understanding of language. Some constraints are grammatical: reference is determined by structural properties of the sentence itself. Other constraints are non-grammatical: reference is based on the understood intentions of the speaker and other discourse factors. I investigate a set of constraints on coreference that are sensitive to grammatical relations, but which I argue are not mediated by the grammar: those determining the interpretation of PRO in a Rationale Clause (RatC), as illustrated in (1). In (1), PRO must refer to Rita; it cannot corefer with the matrix object *Harry*. Some authors have claimed that this is due to syntactic binding of PRO [8, 10]. I defend the alternative view in [11]'s Responsibility Theory (RT), which states that PRO in a RatC is subject to non-grammatical constraints on reference such that it will refer to the party responsible for the "target fact," expressed by the clause for which the RatC provides the rationale (in most cases, the clause to which it adjoins). The apparent structural constraints result from the fact that subjects are likely to be portrayed as responsible, while objects are seen as non-responsible. In (1), PRO must refer to Rita because she is seen as responsible for the fact that she interviewed Harry. PRO cannot refer to Harry because he is represented as not responsible.

(1) Rita_1 interviewed Harry_2 [$_{\text{RatC}}$ in order $\text{PRO}_{1/*2}$ to feel better (about herself/*himself)].

My first argument against control through binding is that the same coreference constraints seen in Local RatCs (1) hold in cases where there can be no syntactic relation, as in Remote RatCs (2). Since syntactic relations cannot cross sentence boundaries, to maintain a grammatical account of control in Remote RatCs would require that PRO in a Remote RatC is bound by some sort of silent constituent, as in (3), for example.

(2) Rita_1 interviewed Harry_2. The reason was [$\text{PRO}_{1/*2}$ to feel better (about herself/*himself)].

(3) The reason [~~Rita_1 interviewed Harry_2~~] was [$\text{PRO}_{1/*2}$ to feel better about herself].

There are several reasons to doubt this, though. First, there are cases of Remote RatCs where relative clause ellipsis will not help. For example, a pronoun can take the place of the ellipsis site (4). Even if we assume that pronouns can have unpronounced content [3], binding out of this position is impossible (5). Therefore, there seems to be no way for elided content to be in the proper configuration to syntactically control PRO.

(4) Rita_1 interviewed Harry_2. The goal behind it was [$\text{PRO}_{1/*2}$ to feel better about herself].

(5) *The best evidence for Lin's improvement is that image of himself on the wall. (A. Williams, p.c.)

Second, relative clause ellipsis in (3) is not clearly licensed. Ellipsis is only licensed for the complement of agreeing functional heads [7, 9], which N is not. Ellipsis in (3) should be impossible. For these reasons, there can be no hidden binder in a Remote RatC. Since PRO cannot be in the same syntactic domain as its controller, grammatical accounts of control of Remote RatCs must be rejected. For RT, on the other hand, which requires no structural dependencies, it makes no difference whether PRO and its antecedent are in the same sentence. PRO in (2) refers to Rita because she is seen as responsible, and Harry is not.

My second argument against grammatical accounts of RatCs is that they cannot explain what I call *superimplicit control* (6). Because of this, even local control in RatCs cannot be reduced to grammatical binding. Attempting to allow for superimplicit control under a grammatical theory of control leads to incorrect predictions. I demonstrate this for one such theory: [4]'s movement theory of control (MTC).

(6) The ribbon was cut by a young girl [in order PRO acquire the support of female voters].

The MTC can easily handle cases of control by the subject of the matrix clause; a sentence such as (1) would involve sidewards movement of *Rita* into the matrix clause (8). Control by the object in (1) would also be ruled out under the MTC. If *Harry* had been merged as the subject of the RatC and then moved to object position in the matrix clause, this would need to occur while *Rita* was still in the Numeration, which would incur a Merge-over-Move violation [2]. Because of this, object control in (1) cannot arise through movement. It also cannot occur through the pronominalization in (8), because interpreting a null category as the trace of movement is preferable to interpreting it as a null pronoun [1]. Therefore, control through pronominalization is only available when control through movement is not [5].

(7) [Rita [T [$_{\text{VP}}$ [$_{\text{VP}}$ ~~Rita~~ interviewed Harry][$_{\text{RatC}}$ in order [$_{\text{CP}}$ ~~Rita~~ to feel better (about herself)]]]]]

(8) *Rita_1 interviewed Harry_2 [in order pro_2 to feel better (about himself)].

RatCs can also have a controller that is completely absent from the sentence (6). Because there is no

antecedent for PRO in this sentence, it must be NOC PRO (i.e. the null pronoun *pro*, represented in (9)). The referent of this NOC/unbound *pro* would be determined by pragmatic principles such as those in RT. Even so, it is not clear why a null pronoun would be licensed in this position under the MTC. If NOC PRO is only available when control through movement is not, a null *pro* should only be available in (9) if movement out of the RatC is impossible. But it is unclear what would prevent that movement if it is allowed out of other RatCs. Specifically, (8) should be ruled out because of the availability of (10).

(9) The ribbon was cut by a young girl [$_{\text{RatC}}$ just *pro* to acquire the support of female voters].

(10) # [The ribbon] was cut by a young girl [just ~~[The ribbon]~~ to acquire the support of the female voters]

One obvious possible explanation for this under the MTC might be that RatCs require a purposeful agent to be their controller. Because ribbons cannot have intentions, the interpretation in (10) is blocked, and superimplicit control through pronominalization is available. When an intentional agent is available as an antecedent to control through movement, such as *a hired crook* in (11), superimplicit control is ruled out.

(11) A hired crook$_1$ burned down the house [in order PRO$_{1/*2}$ to collect the insurance].

This explanation would suggest that under the MTC, interpreting the null subject of a Local RatC as the trace of movement should be strongly preferred, and it is only when the argument that could have moved from that position does not meet the requirements of RatCs that other interpretations are considered. But even this is probably not correct. Kehler [6] demonstrates that people are much more likely to resolve pronouns to the subject of a preceding passive, even when it would lead to an improbable discourse. Given this strong preference, in addition to the preference for traces over pronominalization, comprehenders should strongly prefer the interpretation in (10), even though this interpretation results in a very strange story.

Even ignoring this problem, these constraints still do not capture all the facts. In cases where the subject of the sentence cannot have intentions, *pro* should be possible, resulting in NOC. This leads to the prediction that in a sentence where the subject makes a bad controller, but the object a good one, object control should be possible. Specifically, (12) should have the unavailable interpretation where the intention is for *Ethan* to wash himself before school, since alarms do not have intentions. In addition, when the matrix subject is a purposeful agent, superimplicit control should always be blocked. However, in (13), *the guests* would make a perfectly good controller resulting from movement. Therefore, the MTC wrongly predicts that the overwhelmingly preferred interpretation will be that the guests intended to acquire support. Instead, (13) has an interpretation parallel to (6), where the intended support-acquirers are the organizers of the event.

(12) * An alarm woke Ethan$_1$ up early in order PRO$_1$ to wash himself before school.

(13) The guests were greeted by a young girl in order PRO to acquire the support of female voters.

In sum, the MTC fails to predict when superimplicit control will be available. Where it is available, the MTC requires something like RT to constrain PRO's reference. Under RT, PRO in (6) can be understood as the organizers of the event because they can be seen as responsible for the target fact. Why is superimplicit control not available in (11), with PRO referring to whoever hired the crook? If surface objects are viewed as not responsible, but subjects are, then in (11), perhaps superimplicit control is unavailable because its active form highlights the crook's responsibility and downplays the responsibility of his employer. Because of this, he is the most likely controller for PRO in the RatC under RT. When the sentence is changed to deemphasize the crooks responsibility, as in (14), superimplicit control becomes available.

(14) The house was burned down (by a hired crook) in order PRO to collect the insurance.

Grammatical theories of control are unable to account for Remote RatCs or for superimplicit control. Instead, PRO in these RatCs is constrained by RT. Because RT is required even under grammatical accounts, and because it is able to account for Local and Remote RatCs on its own, the simpler theory is that it alone is responsible for the interpretation of any RatC. Additionally, positing a grammatical account for some Local RatCs leads to incorrect predictions about when superimplicit control will be available. Therefore, PRO in a RatC is interpreted through RT. Grammatical relations play no role. This suggests that there can be strong constraints on reference sensitive to structure that are not mediated by the grammar, and that there are cross-discourse constraints that are not information-structural, but conceptual.

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Children's informativeness in event descriptions

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Adults adjust the informativeness of their utterances to the needs of their addressee.[1,4] For children, relevant evidence is mixed. Five- to 8-year-olds often produce ambiguous utterances in their referential communication with ignorant interlocutors,[2,3] but other studies suggest that young children are sensitive to their partners' perspective.[5-7] The factors contributing to this mixed pattern remain unclear.

Here we explore the communicative circumstances under which children offer informative descriptions matching their listener's needs. Unlike prior work on nominal reference, we ask whether children can provide information to disambiguate *event* reference. We probe effects of (a) typicality of disambiguating event components (typical vs. atypical instruments), and (b) the listener's visual access.

In Experiment 1, participants described events to listeners who either saw or could not see the events. Half of the events contained typical and half atypical instruments (e.g., watering plants with watering can/hat). We found that both adults and 5-year-olds were more likely to mention atypical than typical instruments (ad:M=.87 vs. .22; ch:M=.36 vs. 06, *p*s<.05). We also found that adults were more likely to mention instruments when the events were not visible to their interlocutor ($M_{NoVisualAccess}$=.64, $M_{VisualAccess}$=.47; *p*<.05) but in children visual access did not affect instrument mention ($M_{NoVisualAccess}$=.20, $M_{VisualAccess}$=.23; *p*>.05).

Experiment 2 asked 4-year-olds, 5-year-olds and adults to select one event from a minimal pair of pictured typical/atypical instrument events and describe it to a listener with or without visual access to the pair. Results showed that, in this contrastive context, adults were highly informative overall but children massively failed to provide disambiguating information. Specifically, 4- and 5-year-olds mentioned atypical instruments more frequently than typical instruments (4s:M=.23 vs. 07; 5s:M=.43 vs. .19; *p*s<.001), but adults used both equally frequently (ad:M=.94 vs. 92; *p*>.05). Overall, 5-year-olds were more informative than 4-year-olds. Visual access to the events did not affect instrument mention in any age group (*p*>.05). To test whether children's low informativeness was due to broad pragmatic limitations or to context-specific difficulties, Experiment 3 was a more interactive version of Experiment 2: participants played a guessing game with a confederate listener who was nevertheless introduced as "naïve". Results showed that, in this interactive context, overall informativeness increased (*p*<.001). Still, speakers tended to mention atypical/unpredictable instruments more frequently than typical instruments (*p*=.014).

In sum, adult speakers performed both generic adjustments (adding information about atypical instruments) and more specific adjustments to addressees' needs (mentioning instruments more often when addressees could not see the events). Children, however, often included very few instruments and made only generic (typicality-based) adjustments. Children's mention of instruments increased only in the more interactive Exp.3, where children engaged in a more genuine collaborative interaction with a "true" interlocutor. We show that the disparate findings in prior referential communication studies can be explained by similar differences in the nature of the referential task and discuss implications for children's pragmatic development.

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Figures

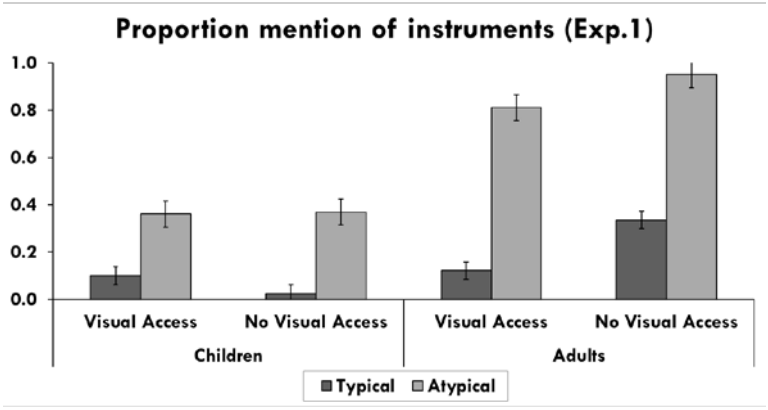

Fig.1. Proportion of mention of Typical and Atypical instruments (Exp.1).

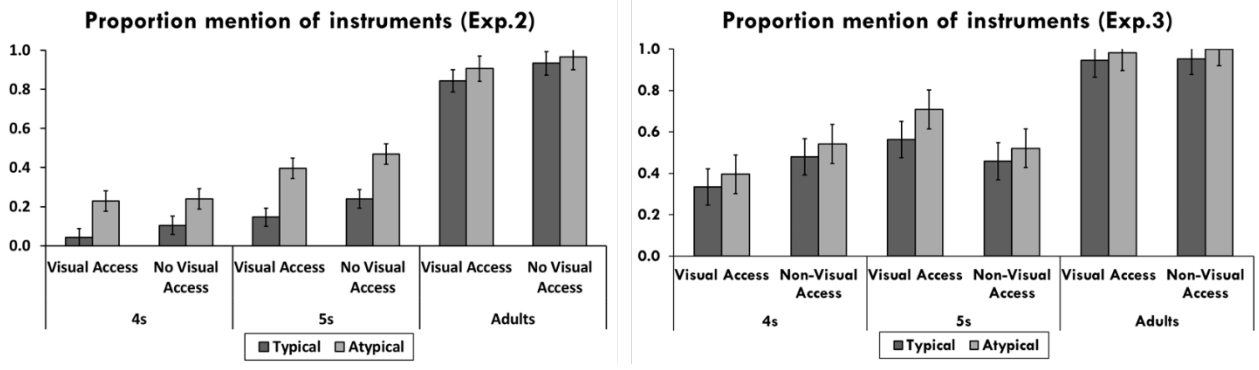

Fig. 2. Proportion of mention of Typical and Atypical instruments (Exp.2-3).

Quinn Harr
University of Maryland
6th MACSIM presentation

Title:

In What Sense Is *Might* an Epistemic Modal?

Abstract:

When someone makes a modal claim, we can explain what makes that claim true. We can do this with both epistemic modal claims and non-epistemic ones. However, the claims made with one apparently epistemic modal—*might*—do not support the sort of epistemic explanations that other epistemic modal claims do. I consider possible reasons able to be offered by existing truth-conditional accounts of *might* for why this might be so but find none of them convincing. Such accounts take *might* to somehow have information states encoded into its semantics, but I propose to replace these with sets of circumstances and to explain the apparent epistemicity of *might* in purely pragmatic terms. In so doing, I argue, we can account for the explanations that bare *might* claims do and do not support while also accounting for data that motivated a truth-conditional account of *might* in the first place.

Syntactic bootstrapping with minimal verbal morphology:
Learning Mandarin Chinese attitude verb meanings

Nick Huang, University of Maryland

Introduction Compared to other verbs, belief and desire verbs (e.g. "to think" and "to want") express events (mental states) that lack reliable physical correlates. Thus, while children successfully come to acquire the meaning of these attitude verbs, it is highly unlikely that they do so using situational context alone (see Gleitman et al. 2005). One hypothesis is that children learn about the differences between these two classes of verbs via syntactic bootstrapping, i.e., by using observed morphosyntactic cues, and exploiting principled links that relate these cues to their meaning (e.g. Gleitman 1990). In Romance and Germanic, belief and desire verbs are each associated with clausal complements with clearly distinct tense/mood morphology or word orders (Bolinger 1968, Scheffler 2009; White et al. 2016, a.o.), making syntactic bootstrapping plausible. Furthermore, while the form of the morphosyntactic cues vary across these two families of languages, they converge in that belief verbs take complements with syntactic hallmarks of declarative main clauses, while desire verbs do not (Dayal and Grimshaw 2009; Hacquard 2014; White et al. 2016).

Problem Syntactic bootstrapping presupposes the existence of reliable morphosyntactic cues. In a language with relatively little overt verbal morphology, such as Mandarin Chinese, it is less clear whether syntactic bootstrapping is a viable strategy for learning attitude verb meanings.

Proposal I argue that syntactic bootstrapping is in principle possible for learning meaning differences between Mandarin belief and desire verbs, even though Mandarin does not have overt tense/mood morphology.

First, there are syntactic properties that generally distinguish the clausal complements of belief verbs from those of desire verbs, including the presence of an overt subject (1) (but note that the desire verb *yao* "to want" can occur with an overt embedded subject (1b), and subjects can be omitted in context), modal auxiliaries (2) (after e.g. C.-T. J. Huang 1982, pace Hu et al. 2001), and A-not-A yes/no question morphology (3). I further argue that these properties support the "main clause syntax" hypothesis: the features that distinguish complements of belief verbs from those of desire verbs in a language correlate with the features observed in declarative main clauses.

(1) a. Lisi renwei ta chi-su.
L think he be-vegetarian
'Lisi thinks that he is vegetarian.'

b. Lisi {xiang (*ta) / yao ta} chi-su.
L want he want he be-vegetarian
Intended: 'Lisi wants him to be vegetarian.'

(2) a. Lisi renwei Zhangsan hui chi-su.
L think Z will eat-vegetarian
'Lisi thinks that Zhangsan will become vegetarian.'

b. Lisi {xiang / yao} (*hui / *yiding) chi-su.
L want want will necessary eat-vegetarian
Intended: 'Lisi wants to be vegetarian (in the future) / In all worlds compatible with Lisi's desires, it is necessary that he is vegetarian.'

(3) a. Lisi renwei Zhangsan chi-bu-chi-su?
L think Z eat-NEG-eat-vegetarian
'Does Lisi think that Zhangsan is vegetarian, or does Lisi think that he is not?'

b. * Lisi{xiang / yao} chi-bu-chi-su?
L want want eat-NEG-eat-vegetarian
Intended: 'Does Lisi want to be vegetarian, or does Lisi want to not be vegetarian?'

Second, I present initial findings from an ongoing Mandarin Chinese CHILDES corpus study, showing that these properties are distributed differently across belief and desire verbs in child-directed speech. For example, even though subjects can be omitted in the clausal complements of belief verbs, and an overt subject can appear in the clausal complement of the desire verb *yao*, the distribution of overt subjects in child-directed speech is different across the complements of belief verbs and those of desire verbs, including *yao*. I argue that the observed distributional differences can be used by the child to sort attitude verbs into two semantic classes, i.e. belief and desire verbs. Despite the relatively impoverished tense/mood/verbal morphology in Mandarin Chinese, there are arguably sufficient syntactic cues available for syntactic bootstrapping purposes.

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Purposive interrogative adjuncts

Jooyoung Kim (University of Delaware)

This paper examines a kind of floating embedded questions in Japanese and Korean, which are interpreted as (near-)purposive clauses. An example is as follows:

(1) **[nwu-ka o-nun-ci] -Ø** Paul-un chang-ul naytapo-ass-ta.
who-Nom come-Adn-Q -Ø Paul-Top window-Acc look-Past-Decl
Lit. '[Who is coming], Paul looked at the window', or roughly
'In order to find out who is coming, Paul looked at the window.'

The embedded question above, or a *purposive interrogative adverbial (PIA)* throughout the paper, lacks a clause final marker and the logical connection between the interrogative adverbial and its matrix clause is not overtly specified. This lack of the clause-final marker is not observed in the case of the other subordinate clauses in Japanese/Korean. For instance, (2) with a corresponding purposive clause (meaning 'in order to…') becomes ungrammatical when its subordinate clause does not have the purposive marker *-kiwihay*.

(2) [[nwu-ka o-nun-ci] -(lul) *(hwakinha)-*(**kiwihay**)] Paul-un chang-ul
who-Nom come-Adn-Q -(Acc) find.out-**PURPOSE** Paul-Top window-Acc
naytapo-ass-ta.
look-Past-Decl
'In order to find out who is coming, Paul looked at the window.'

My aim is to show that despite their lack of overt knowledge verb and clausal marker, PIAs contribute to the at-issue entailment just as standard purposive constructions. This implies that a finite and non-declarative (hence incapable of denoting a property, proposition, or event) subordinate clause can be a semantics constituent under proper environments.

What a PIA entails

The presence of the PIA in (1) leads to the following effect onto the semantics of (1):

(3) Paul, who conducted the task of looking at the window, intended to find out the answer to 'who is coming' by doing the task.

This meaning is part of the *at-issue entailment* of the denotation of sentence (1) rather than presupposition or implicature. (3) can be the direct target of negation, as in (4); and their meaning cannot be cancelled, as illustrated in (5).

(4) A: [Paul-un [nwu-ka o-nun-ci] chang-ul naytapo-nkes]-iani-ta.
Paul-Top who-Nom come-Adn-Q window-Acc look-Comp Neg-Decl
'It is not that Paul looked at the window in order to find out who is coming.'
B: 'I knew it! He looked at the window for some other reason!'

(5) **[nwu-ka o-nun-ci] -Ø** Paul-un chang-ul naytapo-ass-ta.
who-Nom come-Adn-Q -Ø Paul-Top window-Acc look-Past-Decl
'In order to find out who is coming, Paul looked at the window.'
a. #...'and Paul didn't have any purpose when he was looking at the window.'
b. #...'and Paul regret that his purpose was to ask/wonder who is coming.'

Possibility of a semantic operator

Contrasted by the corresponding (standard) purposive clauses, PIAs like the one in (1) lack the verb of knowledge 'find out' and a purposive marker, which are in shade in (2). Despite the lack of the overt marker, the relationship of the interrogative adverbial to its matrix clause is fixed: the intention of the matrix agent or the purpose of the matrix event. This paper suspects the presence of a covert semantic operator for PIAs in Japanese/Korean such as:

(6) λQλPλxλe. [event(e) & P(e)(w) & Agent(e)(x) & ∀w'[w' is compatible with the goals relevant to e: x ℝ Q]]

This operator will be responsible for a purposive reading and a teleological modality, similarly to the covert modal in Nissenbaum (2005) for rationale clauses in English. Additional ℝ is a default predicate, which could be interpreted as *have* or a possession verb in the sense of Dowty (1979). It winds up denoting 'to find out' by pragmatic enrichment.

What PIA is not

In addition, this paper will reject the following apparent possibilities of the status of PIAs.

(7) a. An argument that is selected by the higher/matrix predicate
b. An argument of a hidden predicate and a covert clause marker
b. A conjunct to/with the matrix clause

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Approximating the Semantic Structures behind Category Fluency Sequences

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Preliminary presentation of a journal article in preparation

Category (or semantic) fluency is a test in which subjects are asked to produce orally as many words as possible that pertain to a single semantic category in a designated time period—usually sixty seconds. As the number of correct words produced by an individual has been reported to be a predictor of variation in cognitive abilities (Maseda et al. 2014; McDowd et al. 2011; Tombaugh, Kozak, and Rees 1999), category fluency is commonly practiced as a part of various neuropsychological assessment batteries (Mioshi et al. 2006; Weintraub et al. 2009). In addition to the unique word count, the tendency of the subjects to organize lexical items into semantically coherent *clusters* and their ability to effectively *switch* between those clusters enable finer qualitative analysis of cognitive decline and brain dysfunction (Abwender et al. 2001; Lezak 2004; Troyer et al. 1998). Troyer and colleagues (Troyer 2000; Troyer, Moscovitch, and Winocur 1997) have proposed a manual assessment protocol to analyze category fluency test results in terms of clustering and switching, exploiting the hierarchical structure, or the taxonomic organization of the lexical items that are semantically related. An interesting aspect of this seminal method is that although it is based on real-world taxonomy, the cluster definitions are manually selected and therefore carry some degree of arbitrariness. Nevertheless, empirical evidence shows that these scores show good correlation with various cognitive conditions related to executive processes and semantic memory (Raoux et al. 2008; Tröster et al. 1998), which suggests that the manually constructed clusters are good approximations of the semantic structures underlying the production of category fluency sequences. Another note is that although these manual scores are known to be useful indicators of certain neuropsychological conditions, the scoring process according to the established protocol is 1) time- and resource-consuming and 2) not adaptable to linguistic, cultural and categorical variations.

With respect to these points of discussion, we propose a novel scoring method named Backlink-VSM, that resolves both time/resource issues and adaptability problems. In the design process, we explore effective ways to approximate the semantic structures that may give rise to the category fluency sequences in order to compute scores that correlate well with the established findings in the literature. As a result, our method achieves automation of the traditional scoring protocol by estimating the semantic organization of lexical items using information extracted from large amounts of linguistic data. We extract two types of information—relational and distributional—from Wikipedia, with a goal of reproducing the results obtainable from applying the standard protocol. Relational knowledge is represented by links between Wikipedia entries (*backlink model*), and distributional information is represented by a semantic proximity metric derived from vector representations of the linguistic contexts of each word (i.e., its distribution; Harris 1954; Mikolov et al. 2013) (*vector space model*). We illustrate our approach with data collected from two languages/cultural backgrounds (English and Korean), and with two categories of items (Korean fruits and Korean animals) and show that the measures generated can reproduce previously reported age-related distinctions via clustral analyses (Troyer 2000). Our results show

significant correlation with the manual clustering and switching analyses, implying that our automated model is also a reasonable approximation of the underlying semantic structures. Furthermore, we find that the combination of relational and distributional models yields better prediction performance in comparison to standalone uses of either model, which suggests that non-hierarchical, non-taxonomic cluster and switch definitions drawn from distributional similarity could augment the original estimation based on relational structures.

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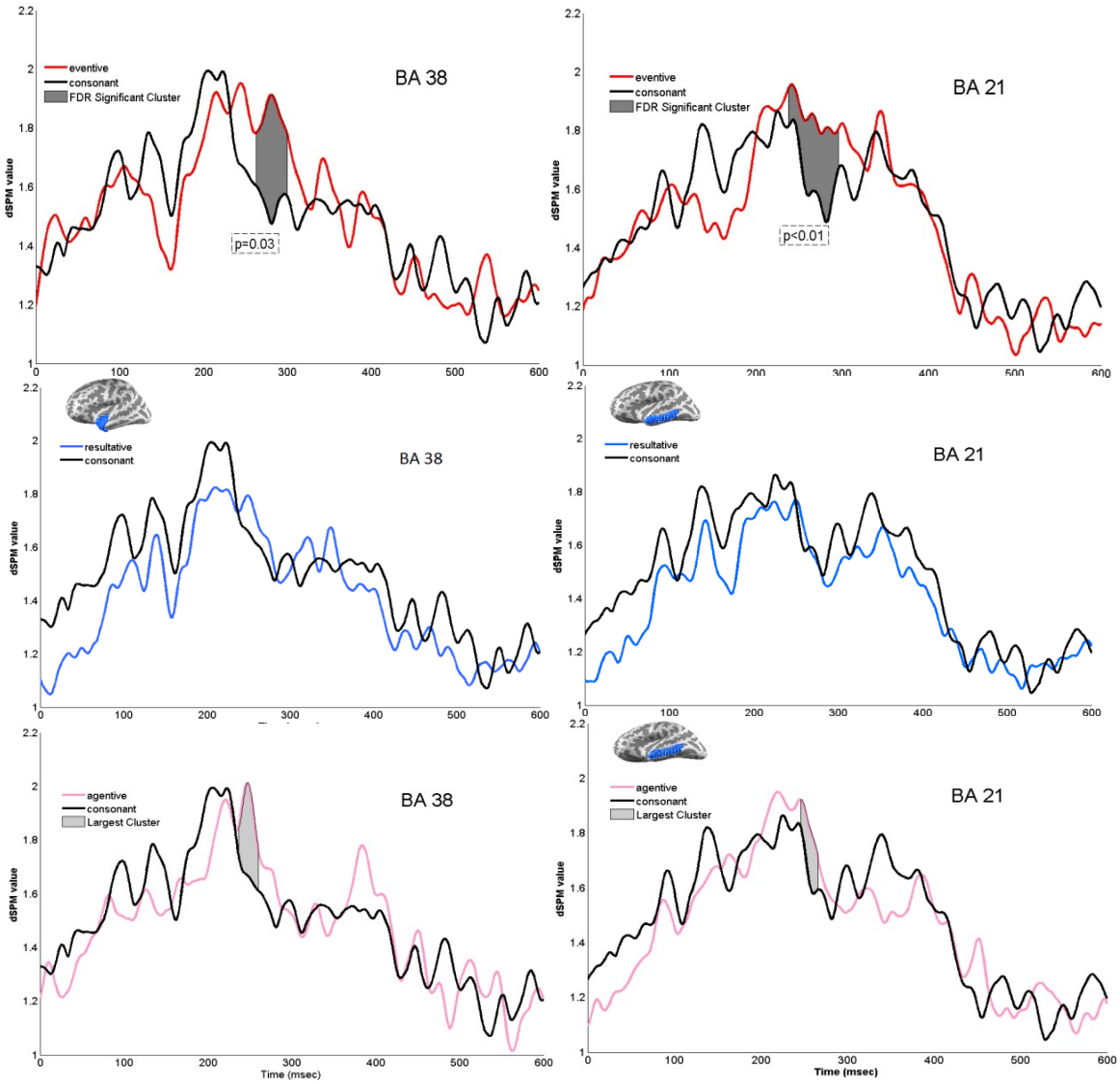
Adverbial composition in the left anterior temporal lobe

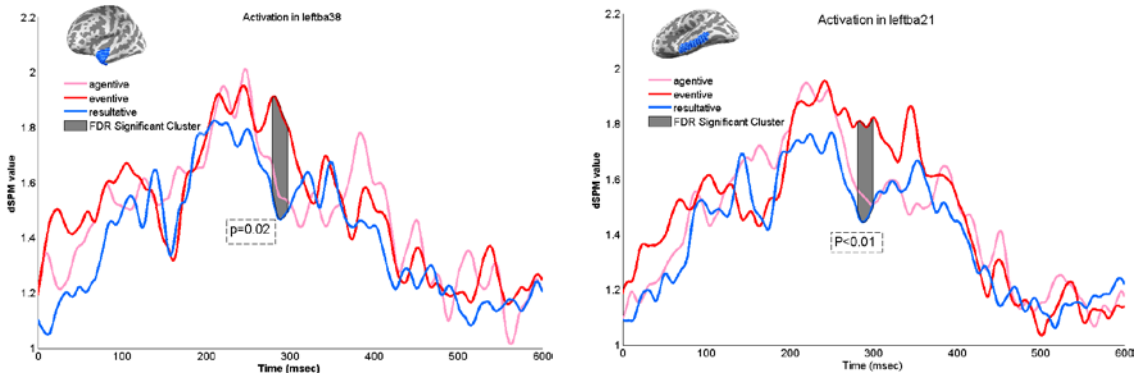
Songhee Kim (New York University)

The left anterior temporal lobe (LATL) has been one of the most robustly implicated brain areas with regard to combinatory semantic processing. The composition related activity in the LATL typically appears between 200-300ms after the onset of the target word, preceding the timing of the N400, which has traditionally been considered an index of semantic processing in the field. To give a plausible account for this rather early timing, we hypothesized that the early composition effect in the LATL corresponds to an early phase of composition at which only the most readily accessible meaning can be composed. As one test of this hypothesis, we compared the LATL activity elicited by the modification of a verb by different types of adverbs: eventive (e.g., *slowly paints*), agentive (e.g., *reluctantly paints*), and resultative (e.g., *vividly paints*). Among these adverbs, only eventive adverbs directly modify the event described by the verb, whereas agentive and resultative adverbs make reference to event participants that are not described by the verb (or overtly expressed in our stimuli). Thus we expected that, upon the presentation of the verb, the composition activity at 200-300ms post-stimulus would be observed only in the eventive condition, integrating the content of the modifier word with the action denoted by the verb. Consistent with our hypothesis, the composition effect was exhibited only in the eventive condition (i.e., a significantly increased activity for *slowly paints* compared to *cxqzt paints* in the left BA38 and the left BA21) at 200-300ms post-verb. Neither the resultative nor the agentive conditions showed reliably increased activities compared to the control condition (i.e., *cxqzt paints*) (See Figure 1). Also, among the three combinatory conditions (i.e., eventive, agentive, and resultative), the eventive condition turned out to elicit a reliably larger activity than the resultative condition in the region of interest (See Figure 2).

Overall, our results support the early composition hypothesis that the LATL composes an early phase of composition and thus needs the lexical features provided by a modifier to stand in a simple relation with the following modified word, without requiring any further information from the context.



[Figure 1] Pairwise t-tests performed over BA20/21/38 over 200-300ms post-verb onset showed that only the Eventive condition is reliably different from the control condition(p=0.03, BA38, p<0.1 BA21, FDR corrected).



[Figure 2] 1x3 ANOVA conducted on BA20/21/38 over 200-300ms post-verb onset showed the main effect of Adverb Type within the combinatory conditions: BA38, 279-297ms, p<0.05, BA21, p<0.01, 281-299ms.

A rating study of frozen scope in the English VP-internal locative alternation

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In most English sentences with two quantified NP's, quantifier scope is ambiguous (1), but for variants of the VP-internal locative alternation in which the Locatum surfaces in indirect object position, it has been claimed that a universally quantified Locatum cannot out-scope an existentially quantified **Location**[1]; see (2) and (3).

(1) **A child** climbed every tree. *a>every, every>a*
(2) The workers loaded **a truck** with every box. *a>every, *every>a*
(3) The waiter cleared **a table** of every dish. *a>every, *every>a*
(4) The workers loaded every box on **a truck**. *a>every, every>a*
(5) The workers loaded **the truck** with every box. control condition

To test this claim, participants were asked to judge the acceptability of a plural interpretation of the **Location**, on a 7-point scale from *-3: must be singular*, to *0: both interpretations are equally good*, to *3: must be plural*. Experimental items were sentences like (2) and (3), taken from four verb classes, crossing preposition (*with/of*) and the availability of a DO-Locatum PP-variant (4)[2]. Items were normed and counterbalanced for the plausibility of a collective *vs.* distributed spatial relation between the **Location** and Locatum and rated for ambiguity of PP-attachment (to verb or noun). Experimental items were compared to unambiguous matched control sentences with only one quantifier (ex., (5) is the control for (2)). Presentation was in IBEX, online at IBEX Farm.[3] Each list included 18 experimental items, 18 control items, and 108 assorted fillers.

Data from 50 adult native speakers of English (mean age 43.3) were modeled using cumulative link logistic regression [4]. The analysis picked out condition, plausibility, age, and preposition as contributing to the distribution of ratings. Experimental items were rated higher than control items ($p<.001$, fig. 1). Distributive-bias items were rated higher than neutral items ($p<.001$), which were rated higher than collective-bias items ($p=.005$). Older participants rated items more toward the "frozen" end of the scale ($p=.007$). Experimental *with*-variants (2) were rated higher than *of*-variants (3), relative to controls (5), and they were more likely to be rated "equally good" ($p<.001$, fig. 2).

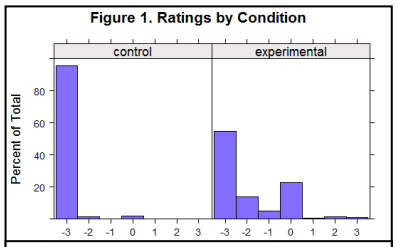

Figure 1. Ratings by Condition

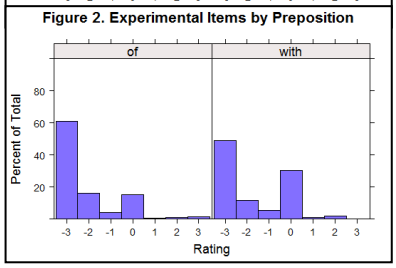

Figure 2. Experimental Items by Preposition

The preposition effect is not predicted by the theory of frozen scope[1], nor is it likely to arise from task-related variability. Rather, it indicates that quantifier scope is not frozen across-the-board for oblique-Locatum variants of the English VP-internal locative alternation. I propose that the syntactic structure of *with*- and *of*-variants differs in a way that predicts this effect and that the possible scope readings for these sentences are analogous to those available for French *avec*-variants (free) and *de*-variants (frozen), respectively. The semblance of frozen scope in *with*-variants is argued to be due to a combination of processing factors (ex., a preference for surface readings of *a…every* quantifier order[5], also seen in participants' ratings of ambiguous filler items) and semantic factors (ex., the holistic affectedness of the Location implied by its promotion[6]).

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Experimental evidence for the discourse potential of bare nouns in Mandarin

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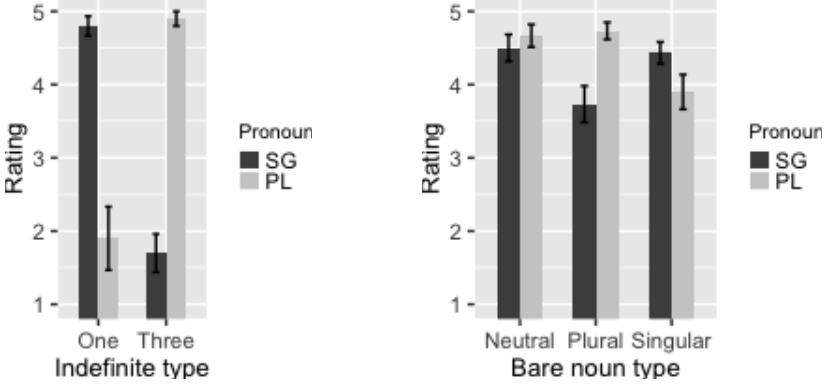
Introduction The discourse property of bare nouns without number morphology as compared with that of indefinites has been the focus of linguistic inquiry in recent years. Scholars disagree on whether bare nouns are 'transparent', i.e., able to support pronominal anaphora, or 'opaque', i.e., unable to do so. Scholars embracing the opaque view often take the opacity to be evidence for the kind-based analysis (Dayal 1999) or the special compositional semantics of bare nouns (Farkas & de Swart 2003), while scholars holding the transparent view either analyze bare nouns as indefinites (Modarresi 2014) or see no connection in the discourse property of bare nouns and their semantics (Chung & Ladusaw 2004). Drawing on evidence from a two-part experimental study on bare nouns in Mandarin, we demonstrate that **bare nouns are transparent, but the transparency is distinct from that of indefinites**. More concretely, the results from an acceptability judgment task indicate that pronominal anaphora in the bare noun condition is highly acceptable on a par with the indefinite condition, thus providing evidence against the opaque view; however, the results from a self-paced task shows that the bare noun condition incurs additional reading time relative to the indefinite condition, indicating an increased processing effort involved in the former. We argue that the results from the experiment are better explained by a theory that attributes the transparency of bare nouns to the result of pragmatic "bridging" (Dayal 2011), or by a theory that invokes presupposition accommodation in pronominal anaphora with bare nouns (Modarresi 2014).

Methodology 30 native Mandarin speakers participated in a two-part experiment administrated via Superlab experimental software in a laboratory setting. Mandarin was targeted since its bare nouns are free from any number morphology, unlike most of the languages previously investigated, which have bare plurals. The two tasks were a self-paced moving window reading study (Just, Carpenter & Wooley 1982) and an acceptability rating task, both using a 2×2 design. The first factor, NP type, had 4 levels: bare nouns with neutral, singular, or plural number bias (determined in an independent norming study, following Modarresi (2014)'s proposal that number bias plays a role), and indefinites with numerals 'one' and 'three'. The second factor, Pronoun type, had 2 levels: 3rd. person singular and 3rd. person plural. There were 24 total trials. Trial types (presented in a Latin-square design) all had similar structure, as illustrated in (1): The first sentence introduced a context and the NP, the only potential discourse referent. The second sentence continued the discourse and included a pronoun, which was intended to refer back to the NP. (Comprehension questions throughout checked for co-construal relations and attention to discourse coherence between the two sentences.) In the self-paced reading study, participants read the sentences fragment by fragment by pressing the space key, and response times between key presses were recorded. In the rating task, participants judged each two-sentence pair on a Likert scale of 1 to 5 (1: completely unacceptable, 2: unacceptable, 3: marginal, 4: acceptable, 5: perfectly acceptable).

(1) Women zai bianlidian kanjian-le (yi-ge) xiaotou. Ta/tamen touwan dongxi jiu liuzou-le.
we in store see-Asp one-Cl THIEF he/they steal things then leave-Asp
'We saw a thief/THIEF in a store. He/they stole something and left.'

Results All statistical analyses reported in this paper were conducted by linear mixed-effects modeling with lme4 package for the statistical language R (R Core Team 2016). Probabilities were estimated by means of the function summary in the package lmerTest. Response times are log-transformed before being analyzed. The results from the acceptability judgment task are presented in Figure 1, with Figure 1a showing the ratings for indefinites, and 1b showing the ratings

Figure 1: Acceptability ratings of pronominal anaphora

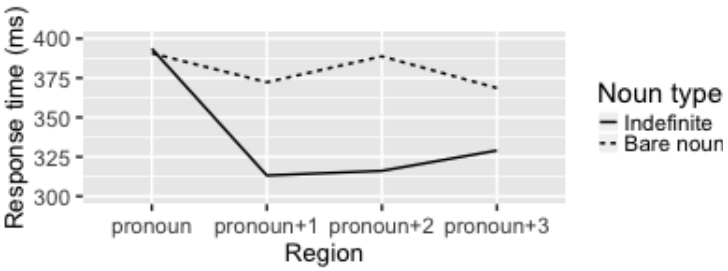


(a) The indefinite condition (b) The bare noun condition

for three types of bare nouns. Generally speaking, when indefinites and bare nouns are paired with appropriate pronouns, they are both highly acceptable (indefinite: mean=4.85; bare noun: mean=4.57). The indefinite condition has a slightly higher mean than the bare noun condition, but this difference does not reach statistical significance (β=0.25, SE=0.19, t=1.31, p>0.05). The indefinite condition differs from the bare noun condition in being more sensitive to mismatching pronouns. This is expected because the number specification on indefinites is grammatical but the number condition on bare nouns is merely a contextual bias.

The results from the self-paced reading task are presented in Figure 2, which shows that the indefinite condition is processed faster than the bare noun condition in the three regions following the pronoun. Specifically, the differences in the pronoun+1, pronoun+2, and pronoun+3 regions are 59ms, 73ms, and 40ms, respectively. These differences are statistically significant (β=-0.12, SE=0.04, t=-2.99, p<0.05).

Figure 2: Response times of pronominal anaphora in the indefinite condition and the bare noun condition



Discussion The high acceptability of the bare noun condition poses a challenge for the opaque view, which maintains that bare nouns do not support pronominal anaphora due to their inability to introduce discourse referents. At the same time, the increased response time and processing effort in the bare noun condition suggests that bare nouns in Mandarin are not fully transparent, in a way similar to numeral indefinites. The combined findings instead point to what we will term a 'translucent' view (a terminology borrowed from Farkas & de Swart 2003), in which pronominal anaphora with bare nouns is licensed , but in a way that is distinct from anaphora reference with indefinites. Dayal (2011) and Modarresi (2014) are representative proponents of this view, though they ascribe to distinct explanations for why bare nouns behave differently in pronominal anaphora.

According to Dayal (2011), bare nouns are event modifiers, which do not introduce discourse referents. However, pronouns can refer to bare nouns via an indirect anaphoric relation, established by applying a function to the events modified by bare nouns. From this point of view, the slow down is due to the anaphoric relations in the bare noun condition being established indirectly. Modarresi (2014) argues that bare nouns in fact do introduce discourse referents but the discourse referents introduced lack number specifications (see Kamp & Reyle 1993). On the other hand, overt pronouns have additional information, arguably a presupposition (Sauerland 2003), about the number specification of the discourse referents they refer to; a singular pronoun not only presupposes a discourse referent but also that it is atomic, while a plural pronoun presupposes a plural discourse referent. When an overt pronoun is used, it triggers an accommodation of the number presupposition in the bare noun condition. From this point of view, the slow down is due to presupposition accommodation.

While the present study does not provide us with sufficient means to decide between different versions of the translucent view, it provides us with novel experimental evidence in support of the translucent analysis of bare nouns in Mandarin and the potential translucency of bare nouns in general, which would otherwise be hard to tease apart from transparency and comparable status with indefinites, if acceptability measure were the only dimension being evaluated. We will close our talk by extending this discussion to ongoing cross-linguistic investigations of bare nouns.

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NPI licensing and the role of phonological phrasing in Korean

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Richards (2016) proposes that agreeing elements in syntax should be in the same phonological domain (forming "probe-goal Contiguity" in Richards' term). I argue that interpretational ambiguity displayed in Negative Sensitive Items (NSI) in Korean offer an argument in favor of this proposal.

NSIs in Korean consist of an indefinite and a focus marker *-to*, which can broadly be categorized into two groups hinging on the type of the indefinite: 1) *amwu* +(N)+*to*, 2) *wh*+(...)+*to*. Though they seem to deliver similar interpretations, they have important differences. First, the former is subject to the clause-mate condition (Sells 2006), while the latter is subject to the c-command relation requirement.

(1) a. **Mary-nun [$_{CP}$ Tom-i **amwu chak-to** ilkesstako] sayngkakha.ji **anh**-nun-ta.*
M-Top T-Nom ANY book-Foc read think not-Pres-Decl
'(intended reading) Mary does not think Tom read any book.'

b. *[$_{CP}$ **amwu chak-to**$_i$ Mary-nun [$_{CP}$ Tom-i t_i ilkesstako] sayngkakha.ji **anh**-nun-ta]*
ANY book-Foc M-Top T-Nom read think not-Pres-Decl
'Mary does not think Tom read any book.'

c. *Mary-nun [$_{CP}$ Tom-i **mwusun** chak-to ilkesstako] sayngkakha.ji **anh**-nun-ta.*
M-Top T-Nom WHAT book-Foc read think Neg-Pres-Decl
'Mary does not think Tom read any book'

Second, grammatical instances of [amwu(N)to ... NEG] are unambiguous,–they deny existence– while instances of [wh(N)to ... NEG] are ambiguous; they can be understood to deny existence, but they can also take a "specific ... also/even" reading. This is shown below.

(2) a. *John-un **etten** chak-**to** kenturi-ji.**anh**-ass-e.*
J-Top WHICH book-Foc touch-Neg-Past-Decl.
(A)'John did not touch any book.' ⟶ John-un ‖ **etten** chak-**to** (‖) kenturi-ji.**anh**-ass-e
(B) 'For a specific book x, John also did not touch x'. ⟶ John-un ‖ **etten** chak-**to** ‖ kenturi-ji.**anh**-ass-e

b. *John-un **etten** chak-ul kenturiji-**to anh**-ass-e.*
J-TOP WHICH book-Acc touch-Foc Neg-Past-Decl.
(A)'John did not touch any book.' ⟶ John-un ‖ **etten** chak-ul kenturiji-**to anh**-ass-e
(B) 'For a specific book x, John did not even touch x'. ⟶ John-un ‖ **etten** chak-ul ‖ kenturiji-**to anh**-ass-e

In this paper, I first argue that *amwu*-NSIs are negative concord items, and *wh*-NSIs are negative polarity items (NPI), based on diagnostic tests to distinguish between concord items and polarity items by Vallduví(1994) and Giannakidou (2000). Moreover, adopting Contiguity theory (Richards 2016), which has it that a probe and its matching goal must be dominated by a single prosodic phrase ϕ, I propose that the different prosodic structures in (2) are reflections of different syntactic derivations led by distinct features involved in each reading.

A copy of *wh+(...)+to* must be c-commanded by a negation; otherwise, the string receives a free choice reading. Moreover, a copy of a *wh*-indefinite must be c-commanded by *-to*; otherwise, it is interpreted existentially. Given that a probe undergoes Agree with a goal within its c-command domain (Chomsky 2015), the c-command requirement for NSI licensing can be attributed to Agree between a *wh*-indefinite and the focus particle and a negation. Based on this, under the NSI reading, I argue, the *wh*-indefinite of an NSI has [*u*Foc] feature and the string *wh+(...)+to* has [*u*Neg] feature to value, which are valued by the focus particle *-to* and the negation *anh* respectively. On the other hand, the specific reading of the string *wh+(...)+to* does not require the c-command relation, indicating that such features are absent, let alone Agree.

Richards (2016) argues that probe-goal Contiguity is formed by "Grouping" in languages like Korean in which the directionality of a head and a phonologically active edge are different.

(3) Grouping
Take a pair of prosodic nodes α, β and create a ϕ which dominates them both.

Provided that a maximal projection is translated into a ϕ (Selkirk 2011), the phonological structures of (B)s of (2) are the direct reflections of syntactic structures. Under the NSI reading, on the other hand, which involves Agree between a *wh*-indefinite and the focus particle and negation, agreeing elements should form a single ϕ to form Contiguity via Grouping. This is what we see in (A) of (2-b). The remaining question is why (2-a) has an optional boundary after the NSI. Unlike (2-b), *-to* is directly attached to the *wh*-indefinite phrase, which makes the NSI reading more salient than the specific reading and weakens the role of phonological phrasing. This analysis supports that a syntactic structure and its derivation directly influence its phonological structure.

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What ‘need’ lacks, that ‘lack’ needs

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Introduction

This talk aims to give a semantics for the verb ‘lack’. ‘Lack’ is traditionally taken to be a member of the intentional class of predicates associated with absence (Moltmann, 2008). This class is generally exemplified by the verb ‘need’. However, ‘lack’ differs from ‘need’ in at least three major ways. These differences are the primary focus of the talk and an initial analysis attempting to tie them together will be presented.

Differences

Universal reading

Usually an indefinite noun phrase is translated with an existential quantifier. Intensional verbs, however, are different in that they have a non-specific reading; this is exemplified in 1) where no specific cleaner is required, but merely a member of the kind ‘cleaner’.

1) John’s apartment needs a cleaner.

There are a number of tests for intentional predicates: failure of existential quantification, use of special quantifiers, identity conditions, and no support anaphora (Moltmann, 2008). ‘Lack’ passes these tests.

‘Lack’, in addition to the non-specific reading also appears to have a universal reading. That is 2) appears to also have the reading in 3).

2) John’s apartment lacks a picture. (*it has two already)

3) $\forall x\big(picture(x) \rightarrow \dot{lack}(x, \jmath)\big)$

This reading is preserved for the bare plural, but lost when a strictly count complement is used.

4) John’s apartment lacks pictures. (*it has two already)

5) John’s apartment lacks three pictures. (it has two already)

Gradability

In addition to a universal reading, ‘lack’ is also a gradable property. When combined with an indefinite noun phrase it appears to be on an upper closed scale, as indicated by the grammaticality of ‘entirely’ and the oddity of ‘slightly’ in 6).

6) John's apartment lacks a picture entirely/?slightly.

With a bare plural however, 'lack' appears to be on a totally closed scale, demonstrated by the grammaticality of 'entirely' and 'slightly' in 7).

7) John's apartment lacks pictures entirely/slightly.

'Need', on the other hand, never has an upper limit and appears to have a lower limit in both cases as shown by 8) and 9).

8) John's apartment needs a picture *entirely/slightly.

9) John's apartment needs pictures *entirely/slightly.

When a strictly count complement is used both 'need' and 'lack' appear to lose any form of gradability.

10) John's apartment lacks three pictures *entirely/*slightly

11) John's apartment needs three pictures *entirely/*slightly

Comparability

Both 'need' and 'lack' allow for comparisons of the number of objects needed or lacking, 12).

12) John's apartment needs/lacks more pictures than Mary's does.

'Lack', however, does not allow for comparisons with the number of objects actually possessed, while 'need' does. This is demonstrated in 13).

13) John's apartment needs/*lacks more pictures than it has.

Analysis

An initial analysis will be presented, which draws upon the apparent mass/count distinction in the complement of 'lack' to account for the universal reading and its gradable properties. A comparison, between the number of objects needed to fulfill the requirement and the number of objects currently possessed, will be built into the meaning of 'lack'; explaining why a comparison with the number of objects currently possessed cannot be made.

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Actuality Entailment in Akan

Augustina P Owusu

In this paper, we show that the current dominant theory of actuality entailment (AE), Hacquard's (2006, 2009) scope theory, cannot be extended to Akan (Niger-Congo). The scope theory fails to extend Akan for two main reasons; there is no aspect shift in Akan and imperfective does not obviate AE. We, therefore, propose a modal base theory of AE, a totally realistic modal base. We adopt a totally realistic modal base analysis though Hacquard (2008) refers to it as a non-starter for a number of reasons. One of Hacquard's (2008) critique of such a theory is that we would have to assume an analysis that suggests that aspect influences the type of modal base a modal receives. For our account, we are not assuming that aspect is triggering the totally realistic modal base; the modal base is a property of the ability modal itself. The current theory is not competing with the scope theory or any other AE theory as a cross-linguistic solution for AE. It is rather one of the analyses that can be used to account for a phenomenon that appears to involve different mechanisms cross-linguistically. The current theory solves the problem of vacuous aspect shift which had to be assumed for the scope theory to work in Akan. It does not, however, sufficiently address the problem of AE with imperfective in Akan.

Analysis Aspect shift is motivated by Hacquard (2006,2010) to solve the type mismatch between lower aspect and V but also essentially, to put aspect in a position where it scopes above the modal. Aspect in a higher position is able to bind the world argument of the modal and its trace in the lower position. With independent evidence from Kandybowicz (2015), we show that there is no type mismatch necessitating aspect shift in Akan and that aspect is interpretable in-situ. Kandybowicz (2015) proposes a rich middle field for Akan, arguing that aspect is in v and not above V as proposed in the literature. He claims that the past tense marker *na* does not have EPP features and thus does not prompt spec V to spec TP movement. In a matrix clause, therefore,*na* always precede the subject.

1. Na Kofi kasa.
   PST Kofi kasa
   'Kofi used to speak/talk.'

Based on the distribution of *na*, if aspect is being moved to a position below T, we expect that it should precede the subject as well, but it does not.

2. $*$ a Kofi kasa.
   Perf Kofi kasa

We argue that aspect is of type <<εt> <i<st>>>.

In addition to a lower aspect, we propose that *tumi* has a totally realistic modal base when it is interpreted as ability. A modal base f is totally realistic relative to a world of evaluation w *iff* $\{w\} = \cap f(w)$. $\exists w^1$ compatible with circumstances in w s.t. $P(t)(w^1)$. The meaning of [[tumi]] is $\lambda P<<i<st>>.\lambda t.\lambda w.\ \exists w^1$ compatible with circumstances in w s.t. $P(t)(w^1)$. This is similar to the meaning proposed by Hacquard (2006) for circumstantial modals in general. The only difference is the kind of worlds *tumi* quantifies over. This makes two predictions about the data in Akan distinguishing it from both French and English. One, in simple sentences, i.e. abstracting from tense and aspect, a sentence with *tumi* only has the AE reading, there is no modal meaning. *Can* and *able* in English and *pouvoir* in French, all have a modal meaning in simple sentences. As existential modals, the truth conditions of, for instance, 3 is not dependent on there bing an actual

swim event by John. The sentence is true if only the existence of such an event is compatible with the circumstances. *Tumi*, on the other hand, requires that there is an actual event in the actual world.

3. John can fly planes.

4. Kofi tumi twi plane.
   Kofi MOD drive plane
   'Kofi can fly a plane.'

The second prediction follows from the first. We predict that a simple sentence with *tumi* and a perfective sentence with *tumi* will have the same truth conditions. A non-modal sentence is necessary evaluated in the actual world. *Tumi* quantifies over the world of evaluation of the non-modal sentence, the actual world. 5b and 5a however, differ on their presuppositions.

5. (a) Kofi tumi twi plane.
   Kofi MOD drive plane
   'Kofi can fly a plane.'
   (b) Kofi twi plane.
   Kofi drive plane
   'Kofi fly a plane.'

The modal ability or non-AE reading is expressed by a different modal *betumi*. We argue that it is the availability of this modal that differentiates Akan from other languages. In most languages, the ability modal is ambiguous and needs to be disambiguated by aspect or other structural elements.

6. Kofi betumi twi plane nanso ɔ- n- twi plane da.
   Kofi MOD drive plane but 3sg- NEG- drive plane never
   'Kofi can fly a plane but he has never flown one before.'

As a consequence of the theory, we predict that imperfective sentences with *tumi* in Akan will not have AE interpretations, just the modal reading. *Tumi* quantifies over the world of evaluation of the imperfective sentence. The imperfective as argued by Hacquard (2006) has a modal as part of its meaning. Like a regular modal sentence, imperfective sentences are evaluated relative to an ideal/best world where the event denoted by the VP is successfully concluded. When *tumi* combines with imperfective, just like the perfective, the sentence should retain the original world of evaluation. The empirical evidence, however, contradicts this prediction. Imperfective + *tumi* yields an AE; the sentence is interpreted like a non-modal sentence.

7. # Kofi tumi twi plane nanso ɔ- n- twi plane da.
   Kofi MOD drive.HAB plane but 3sg- NEG- drive plane never
   'Kofi can fly a plane but he has never flown one before.'

Future research is needed to further explain the interaction of *tumi* and imperfective in Akan.

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So-Called Non-Subsective Adjectives

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September 21, 2016

Abstract

The interpretation of adjective-noun pairs plays a crucial role in tasks such as recognizing textual entailment. Formal semantics often places adjectives into a taxonomy which should dictate adjectives entailment behavior when placed in adjective-noun compounds. However, we show experimentally that the behavior of subsective adjectives (e.g. *red*) versus non-subsective adjectives (e.g. *fake*) is not as cut and dry as often assumed. For example, inferences are not always symmetric: while *ID* is generally considered to be mutually exclusive with *fake ID*, *fake ID* is considered to entail *ID*. We discuss the implications of these findings for automated natural language understanding.

Case and Content: A Cross-Linguistic Corpus Study

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Summary. I present two projects designed to enable cross-linguistic data-driven approaches to studying argument realization and morphological case frames. First, I investigate cross-linguistic projection techniques that leverage alignment tools from machine translation to construct new semantically annotated corpora in another language (in this case, Czech) from existing resources in English. Second, I present a preliminary model of how a verb's lexical semantics contribute to its arguments' syntactic expression and morphological case marking, a problem which I call *morphosyntactic argument realization*. Among my findings from these investigations are (1) that alignment models from machine translation introduce too much noise into predicate and argument alignments to be useful for linguistic study and (2) that models of morphosyntatic argument realization must be able to capture the heavily skewed case distributions that appear in naturalistic corpora.

Background. In reaction to the problems of role specification and fragmentation facing thematic role theories of argument realization, Dowty [1991] proposes *thematic proto-roles* as an alternative representation of thematic content. Instead of associating each verbal argument with one of a possibly large set of imprecise categorical roles, he describes the argument in terms of which of a small set of privileged entailments, which I will call *proto-role properties*, it satifies. A verb's syntactic expression is then a function of the proto-role properties of its arguments, and traditional thematic roles emerge as fuzzy clusters of sets of entailments analogous to prototype concepts.

Subsequent work has validated Dowty's approach on large-scale datasets. In partiuclar, Reisinger et al. [2015] construct a crowdsourced corpus of proto-role property annotations on a subset of the Proposition Bank corpus [Palmer et al., 2005] in support of a new NLP task, *semantic proto-role labeling* (SPRL). The annotation protocol consists of answering a series of "How likely" questions on a five-point Likert scale and can be completed by annotators with relatively little training, such as those recruited on Amazon Mechanical Turk. White et al. [2016, in review] then show that a probabilistic implementation of Dowty's proto-role linking theory predicts subject selection well on this SPRL corpus.

Separately, Grimm [2005, 2011] extends Dowty's theory in a different direction by arguing that morphological case distributions in a variety of languages can be explained in the same framework as argument realization. In particular, he claims that morphological case, like syntactic expression, is a function of an argument's proto-role properties. The projects I present are a first step toward a wide-coverage empirical validation of Grimm's proposal

Methods. To automatically construct a corpus of Czech verbs and arguments annotated with proto-role properties, I project the SPRL annotations from the Reisinger et al. [2015] corpus to its Czech translation provided by the the Prague Czech-English Dependency Treebank [Hajič et al., 2012], a manually translated parallel corpus with morphological annotations (among other kinds), using the Berkeley Aligner[1] to identify Czech verbs and arguments that correspond with each SPRL-annotated English verb and argument. Because this alignment step is noisy, I then apply several layers of filtering heuristics, such as requiring English verbs to align with Czech verbs, to remove alignments that are likely to be incorrect.

In order to evaluate how well the projected SPRL judgments can be used to predict morphological case on the Czech dataset, I propose a model based on SVM^{rank} [Joachims, 2006][2] which ranks possible assignments of cases to arguments based on the arguments' proto-role entailments. This model is trained on the previously described projected Czech corpus as well as on the English

[1] `https://code.google.com/archive/p/berkeleyaligner`

[2] `https://www.cs.cornell.edu/people/tj/svm_light/svm_rank.html`

Universal Dependencies (UD) corpus [Nivre et al., 2015] annotated for SPRL by White et al. [2016, in review].

Findings. Even though the heuristic filters used to remove potentially incorrect alignments in the projection process are relatively conservative, I was unable to project SPRL annotations from a large number of verb-argument pairs. Furthermore, many of the remaining alignments are still incorrect, and this alignment noise contributes to the errors made by the case prediction model. Thus, it seems that automatic alignment techniques used for machine translation are not ideal for the specific task of projecting predicate-argument annotations.

Despite the case-prediction model's simplicity, it performs well at predicting argument realization on the UD English corpus, although the skewed distribution of syntactic configurations in naturalistic data precludes evaluating the model's performance on ditransitives. However, it performs relatively poorly at predicting Czech case on the projected corpus, reflecting (1) the heavily skewed distribution of nominative and accusative cases over more oblique cases, (2) the inadequacy of the model for phenomena such as null subjects and valency changes, and (3) the significant noise introduced by the automatic alignment step.

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Negation, focus alternatives, and perfect tense

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Background: Ogihara (2002) presents an account of subjunctive conditionals like (1), where a focused future adverb in the antecedent contrasts with the past perfect tense of the verb. Seemingly identical scenarios can be constructed with deontic modals in root clauses like (2):

(1) If you had arrived TOMORROW, we would have had time to arrange a party.

(2) You should have arrived TOMORROW.

Adapting Ogihara's (2002) analysis of (1), I will argue that (2) expresses two presuppositions. First, that the complement of *have* is false in the actual world w^* (i.e. arriving tomorrow is no longer an option for the addressee). I will call this the *falsity of the complement*. And second, that there is a focus alternative of (2) that is true in w^* (the *better alternative* presupposition). Ippolito (2013: 29) shows this second presupposition not to necessarily hold for conditionals like (1). Nonetheless, it does seem obligatory for the main clause examples like (2) to be felicitous.

The triggering of these presuppositions is intuitively connected to the presence of *have* in the examples above. According to Ogihara (2002), the role of the perfect in conditionals like (1) is to ensure that the focus alternatives contrasted with the antecedent are anchored in the past. This claim appears to be falsified by (4) below however, where the presence of negation allows for the contrasted proposition to be anchored at any past *or future* time. Negation also leads to the unexpected asymmetry shown below where (5) is unacceptable but (4) is fine:

(3) You should have arrived YESTERDAY.

(4) You shouldn't have arrived YESTERDAY.

(5) # You shouldn't have arrived TOMORROW.

Questions: Given the data above, the questions the need answering are the following. First, does the perfect contribute any notion of pastness (as suggested by Ogihara (2002)) or merely counterfactuality? (Quick Answer: *have* expresses just counterfactuality). Second, why does the combination of negation and a focused future adverbial lead to the unacceptability of (5)? (Hypothesized Answer: it's infelicitous to presuppose that something will happen in the future).
Proposal: Contrary to Ogihara's (2002) and Ippolito's (2015) proposals for counterfactual conditionals, I suggest that the contribution of the past in (1-5) is entirely counterfactual and that there is no temporal pastness associated with it (I assume that *have* in (2-5) is the realization of past tense in a non-finite context). Following Rubio Vallejo (2016), who proposes a formalization of Iatridou (2000), I assume the following modal denotation for the past, where the underlined section refers to the presupposition that p is false in the actual world.

(6) $[\![\text{Past}_{modal}]\!] = \lambda p_{st}.\lambda w.\ \underline{|w^* \notin p|}\ p(w)$.

Assuming that *should* is a standard Kratzerian necessity modal, the simplified syntactic structure and denotation of (4) would be the following:

(7) a. [You [should [PAST_{Modal} [not arrive yesterday]]]]

b. $[\![(4)]\!]^c = 1$ iff $\forall w' \in \text{Best}(f,g,w^*)$: $\underline{|w^* \notin \{w':\ \neg\exists e.[\tau(e) \subseteq \textit{yesterday}_c\ \&\ \text{arrive}(\text{you})(e)(w')]\}|}$ $\neg\exists e.[\tau(e) \subseteq \textit{yesterday}_c\ \&\ \text{arrive}(\text{you})(e)(w')]$

(7b) expresses that all of the best possible worlds *w'* according to the modal base f and ordering source g are such that there is no event of the addressee arriving yesterday in *w'*, but w^* is not part of that set of best worlds. In other words, (4) presupposes that the addressee

did arrive yesterday in w^* (this is the *falsity of the complement*). In order to derive the *better alternative* presupposition, I appeal to Rooth's (1992) theory of focus and exhaustiveness effects, along the lines of Ogihara (2002). Given that it is the temporal adverb in (4) that bears focus, I suggest that the focus value and alternatives of this sentence are the following:

(8) Focus value of $[\![(4)]\!]$= You shouldn't have arrived X. (where X is a temporal interval)

(9) Focus alternatives of $[\![(4)]\!]$= You shouldn't have arrived (LAST-WEEK $\vee$ 2-DAYS-AGO $\vee$ THE-DAY-AFTER-TOMORROW $\vee$...)

Following the Gricean Quantity-maxim, the assertion of (4) triggers the negation of its focus alternatives:

(10) You should have arrived (LAST-WEEK $\vee$ 2-DAYS-AGO $\vee$ DAY-AFTER-TOMORROW $\vee$...)

As can be seen in (10), the potential focus alternative that the speaker of (4) has in mind can be modified by any kind of past or future temporal interval. This shows that the *better alternative* presupposition doesn't need to be anchored in the past – contrary to what Ogihara (2002) posited for subjunctive conditionals.

The same reasoning applies to non-negative sentences like (3), with the difference that the only acceptable negated focus alternatives will be those where the adverb refers to the past, given that future-oriented ones will trigger the same infelicity exemplified by (5). Because of this, the combined *falsity of the complement* presupposition of all of the negated focus alternatives of (3) will say that w^* is not a member of the set of worlds where the addressee does not arrive sometime in the past. Or, simplifying double negation, that the addressee did actually arrive in w^* at some past time. Thus, it can be motivated that the *better alternative* presupposition of (3) must be in the past without positing that *have* has a direct past contribution. This also makes the right predictions for structures where the focused constituent is not a *temporal* adverb, as discussed by Ippolito (2013: 30) with respect to conditionals.

With regards to the second question I wanted to address, why are sentences like (5) infelicitous? Intuitively, the problem appears to be that these examples presuppose that something already happened *tomorrow* – an obvious temporal clash. This suggests that the problem might be related to the *falsity of the complement* presupposition, and not to the *better alternative* one. This appears correct, given that the negated focus alternatives of (5) are all perfectly acceptable both with past and future adverbs:

(11) Focus alternatives of $[\![(5)]\!]$= You should have arrived (YESTERDAY $\vee$ THE-DAY-AFTER-TOMORROW $\vee$...)

Indeed, I want to argue that sentences like (5) are unacceptable because they presuppose that w^* is already a member of the proposition that you arrive tomorrow, an assumption that is at odds with the fact that the future is non-deterministic. While it seems possible to make presuppositions about the future in embedded clauses (cf. (12-13) below), examples like (5) suggest that this might be harder to obtain in root clauses.

(12) Since you will arrive tomorrow, we might as well wait until then.

(13) When you arrive tomorrow, we'll explain you everything.

References: **Iatridou (2000)** The grammatical ingredients of counterfactuality. **Ippolito (2013)** Subjunctive conditionals. **Ogihara (2002)** Counterfactuals, temporal adverbs, and association with focus. **Rooth (1992)** A theory of focus interpretation. **Rubio Vallejo (2016)** Modal non-assertions.

Turkish: An Optional Classifier Language with Plurals

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This talk explores three properties of Turkish nominal constructions that make it typologically unusual among classifier languages: the optionality of classifiers (1a), the presence of a genuine plural morpheme (1b), and the impossibility of plural forms in numeral constructions (1c):

1. a. Iki (tane) cocuk geldi. b. Çocuk/Çocuk-lar geldi. c. *İki (tane) çocuk-lar gel-di.
two CL child came child/child-pl came two CL child-pl came
'Two children came. 'The child came.'/'Children/The children came.'

The explanation for these effects rests on the semantics for numeral constructions in Ionin and Matushansky 2006 over the one proposed in Link 1983 and Landman 1989. It also depends on having classifiers combine with properties rather than kinds, contra Krifka 1995 and Chierchia 1998.

THE PROBLEM Krifka 1995 and Chierchia 1998 propose that in obligatory classifier languages like Chinese classifiers are functions from kinds into sets of atoms constituted by the instantiations of the kind. Since kinds are inherently plural, being equal to mass nouns in some sense, their atomic instances are not available for counting. Therefore, classifiers are required in order to reach the atomic level of the kind, in light of the claim that atoms are crucial in counting (Chierchia 1998, Ionin and Matushansky 2006). In those languages, since nouns uniformly denote kind terms, the singular/plural alternation is not expected.

However, considering the Turkish data, we are urged to ask the following questions: (i) Are nouns in Turkish also kind terms, given the existence of a classifier in the language? (ii) How can the classifier be optional? (iii) How does Turkish have plural alternatives of the nouns? I attempt to give answers to these questions below.

ANALYSIS Semantics of *tane* Both unmarked nouns and plurals (inflected with *-lAr*) are kind terms evidenced by their compatibility with kind-level predicates (2).

2. a. **İnsan** maymundan türedi. b. **İnsan-lar** maymundan türedi.
human from.ape evolved human-pl from.ape evolved
'Human beings evolved from apes.' 'Human beings evolved from apes.'

Unlike plural kind terms (2b), I further propose that kind terms denoted by unmarked nouns (2a) are like definite singular kinds in English in that they do not have a semantically transparent relation to their instantiations; namely, they are impure atomic (following Dayal, 2004). This difference bears on the fact that in episodic contexts, an unmarked noun denotes only strict singularity as opposed to plurals (cf. *çocuk* vs. *çocuk-lar* in 1b). This would not be expected if unmarked nouns denoted inherently plural kinds.

However, differently from obligatory classifier languages, in Turkish, the classifier cannot be taking a kind term as its argument because of three reasons. First, plurals cannot occur in numeral constructions even with the classifier although they are kind terms. Second, singular kinds (denoted by unmarked nouns) can occur in numeral constructions contrary to what is expected, i.e. they are impure atomic, hence the classifier would not be able to access their instantiations. Third, such kind of semantics would force the classifier to be attested obligatorily in light of the idea that kinds are inherently plural and counting requires access to their atomic level.

Instead, I propose that Turkish is different from Chinese-like languages in that nouns can denote properties besides kinds, and the classifier *tane* combines with properties and triggers a presupposition that the properties it combines with denote sets of atoms (3) (cf. Krifka 1995 and Chierchia 1998).

3. $[[\text{tane}]] = \lambda P_{<e,t>}: \forall x\, [P(x) \rightarrow AT(x)].\ P$

In light of this argument, below I present the analysis of the numeral constructions in Turkish, looking at the nature of the properties denoted by nouns.

Semantics of Numeral Constructions Ionin and Matushansky treat numerals as modifiers, the lexical complement of which has to be atomic (cf. Link 1983 and Landman 1989). The primary motivation comes from the possibility of a compositional account of complex numerals like *two hundred books.*

Adopting this view of numeral constructions immediately explains the grammaticality of *iki çocuk* 'two child' in (1a) and the ungrammaticality of *iki çocuk-lar* 'two children' in (1c) if we make two assumptions: (i) that Turkish unmarked nouns are strict singulars denoting a set of atoms and (ii) that Turkish plural nouns are plural terms denoting a set of atoms and pluralities. In English, by contrast, -s in numeral constructions is taken by Ionin and Matushansky to represent morphological agreement with no semantic content.

Semantics of Nouns Here I show that unmarked nouns are actually strict singulars (e.g. {a, b}), and plurals are number neutral, i.e. inclusive of atoms and pluralities (e.g. {a, b, a+b}). In Bale et al 2010, Turkish unmarked nouns are argued to denote number neutral sets based on their neutral interpretation in predicate positions (4a). The same reasoning can be adopted considering the non-case marked direct object positions (4b).

4. a. Ali ile Merve **çocuk**.
Ali and Merve child
'Ali and Merve are children.'

b. Ali **kitap** okudu.
Ali book read
'Ali did-book reading (one or more books).'

These cases notwithstanding, I argue that they only denote sets of atoms since they receive a strict singular interpretation in argument positions, i.e. subject and case-marked direct object positions (e.g. *Çocuk geldi*. 'The child came.' & *Ali kitab-ı okudu*. 'Ali read the book.').

The apparent number neutrality in 4 arises due to the interaction with external factors. In predicate positions, I suggest that there is a null Distributive Operator in the sense of Link 1983, which distributes the property denoted by the predicative noun to the individuals in the subject position (4a). In the non-case marked direct objects (4b), which are analyzed as pseudo-incorporation in Öztürk 2005, the number neutrality is available only in atelic contexts (following Dayal 2011, cf. 4b with a telic context: *Ali iki saatte araba tamir etti*. 'Ali fixed *a car/*one or more cars* in two hours.')

The number neutrality of plurals is evidenced by the fact that 'more than one' meaning arises in positive contexts due to a conversational implicature, disappearing in downward-entailing contexts and questions in the sense of Zweig 2009 (Krifka 2004, Sauerland et al 2005, among others, contra Bale et al 2010). Compare the plural form in 1b with the one appearing in a question in 5.

5. A. Ormanda **ayı-lar-**a rastladınız mı?
in.forest bear-pl-dat came across question
'Did you come across bears in the forest?'

B: Evet, bir tane gördük.
yes, one CL saw
'Yes, we saw one.'

#Hayır, bir tane gördük.
no, one CL saw
'No, we saw one.'

The Problem of Plurals & The Semantics of *tane* If the cross-linguistic atomizing function of the classifier applied to *tane*, we would expect *iki tane çocuk-lar* 'two classifier children' (1c) to be grammatical contrary to what is attested because the classifier would take the inclusive set denoted by the plural and return the set of atoms (e.g. [[çocuk-lar]] = {a, b, a+b}, [[CL çocuk-lar]] = {a, b}).

This problem is solved by the semantics that I propose for the classifier in 3. Because *tane* presupposes that the property that it takes denotes sets of atoms, when the classifier combines with a plural, the result is infelicitous. In other words, *tane* can only take an unmarked (singular) noun as its complement, hence, the grammaticality of *iki tane çocuk* 'two classifier child' (1a). The optionality of the classifier arises from the fact that there are two options in the language for counting: a numeral and the presuppositional classifier, and the numeral by itself.

IMPLICATIONS My analysis accounts for the optionality of the classifier and the impossibility of the plural forms in numeral constructions of Turkish. What about the presence of a genuine plural morpheme which posits an unusual status to Turkish among classifier languages? My analysis also predicts that Turkish is a [+argumental, +predicative] language in Chierchia's Nominal Mapping Parameter, inducing an ambiguous status to nouns, both being kinds and denoting properties. The presence of a plural morpheme, in fact, rests on this. If nouns in Turkish uniformly denoted kind terms as in Chinese, we would not expect the singular/plural alternation. Since unmarked nouns can also denote properties, the existence of their plural variants are natural.

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Strong versus Weak Definites in Lithuanian

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Background&Proposal: While Lithuanian lacks definite articles, it has suffixes *jis-/ji-* associated with definiteness. These definite morphemes appear on a variety of non-NP categories, but for present purposes we will focus on adjectives. Adjectives can appear in a bare short form ***graži*** "beautiful.SG.F" and a long form with a definite morpheme ***gražio-ji*** "beautiful.SG.F-DEF". Traditional grammar books define the short form as indefinite and the long form as definite (Ambrazas et al. 1997). Recent cross-linguistic work identifies two kinds of definites: strong definites based on familiarity and weak definites licensed by uniqueness (Schwarz 2009, 2013; Jenks 2015; Arkoh & Matthewson 2013). In this paper, we argue that short forms can be definite, and in particular are used to express weak article definites associated with uniqueness. Long forms pattern with strong article definites, as evidenced by familiar definite uses and certain bridging contexts parallel to the German data (Schwarz 2009). However, a difference emerges in larger situations: while German licenses only weak articles, Lithuanian allows both short and long forms, which yield two different readings. The short form refers to general knowledge associated with unique individuals while the long form denotes context specific unique individuals – the distinction also observed by Jenks (2005) between bare nous vs. definite demonstratives in Thai.

Evidence:

I) In line with being indefinite, short forms can also be definite. Unique definites occur in part-whole bridging contexts. Lithuanian short adjectives, like German weak articles, are felicitous in this environment (1). The presence of a long form yields a familiarity reading: the listener must have heard about the new engine from before (2).

II) A product-producer bridging pattern is a strong article environment. The long form is available here (3) and the bare form can only be understood as indefinite.

III) Familiarity definites are referential expressions licensed by an anaphoric link to a preceding expression. This is so-called strong familiarity (Roberts 2003), which in German requires a strong article and in Lithuanian a long adjective (4). The short form in the first sentence in (4) introduces a new referent, a typical function of an indefinite, and it cannot be used anaphorically as illustrated in the second sentence (4).

IV) Larger situation environment (Hawkins 1978) licenses weak definites and permit only weak articles in German. Both types of adjectives are available in Lithuanian, but are associated with different readings also present in numeral classifier languages (Jenks 2015). The long form in (5) presents a unique individual in a specific context. The short form stands for a unique individual licensed by general world knowledge (6).

Conclusion: This study provides additional evidence for the distinction between strong versus weak definites showing that this distinction is not necessarily reflected in determiner patterns, and can also be detected in the adjectival system. Lithuanian also distinguishes between long and short demonstratives and personal pronouns. Hence,

further research would be to see what is the nature of the definite interpretation of these forms, and how this can be related to short vs. long adjective variations in Slavic

Examples modeled on the basis of Schwarz (2009, 2013):

(1) Aš nuvežiau savo automobilį į taisyklą pakeisti keletą detalių.
I brought my car into repair-shop to-change couple parts.
Naujas variklis dabar dirba puikiai.
New engine now works great.
"I brought my car into repair-shop to change a couple of its parts. The new engine now works great."

(2) Aš nuvežiau savo automobilį į taisyklą pakeisti keletą detalių.
I brought my car into repair-shop to-change couple parts.
Nauja-sis variklis dabar veikia puikiai.
New-DEF engine now look great.
[Context: Possible only if "new engine" was mentioned to the hearer before.]

(3) Mes nusipirkome naują avangardišką paveikslą. Už nuoplenus avangardui,
We bought new avant-garde painting. For merits avant-garde
jaunas-is/??jaunas menininkas buvo apdovanotas premija.
young-DEF/??**young** artist was given premium.
"We bought a new avant-garde painting. For the merits to avant-garde, **the young artist** received a premium."

(4) Aš nusipirkau naują automobilį. Tačiau, Jonui naujas-is/??naujas automobilis
I bought **new** car However, Jonas **new-DEF**/??**new** car
nepatiko.
not-like "I have bought **a new** car. However, Jonas did not like **the new** car."

(5) Tai ka darė mūsų Prezidentė, tai turės daryti **naujas** prezidentas.
This what did our president, this must to-do **new** president
"The things that our president did must be done by **the new president**."
[Context: the sentence uttered by the Prime Minister in the evening of elections]

(6) Po rinkimų **naujas-is** prezidentas paskambino miestelio merui.
After elections **new-DEF** president called city mayor
"After the elections **the new president** called the city mayor."
[Context: everyone already knows who is the new president]

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Formal Monkey Semantics

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This talk will summarize some initial results (based on collaborative work) in an emerging field of 'primate linguistics'. Focusing on the semantic side, we will argue that linguistic methods have started to clarify four questions: (i) what is the 'lexical meaning' of individual monkey calls? (ii) how are the meanings of individual calls combined? (iii) how do calls or call sequences compete with each other when several are appropriate in a given situation? (iv) how did the form and meaning of calls evolve? We will survey two case studies, pertaining to Old World monkeys (Campbell's monkeys) and New World monkeys (Titi monkeys), arguing that a key question concerns the *division of labor between semantics, pragmatics and the environmental context*. We will also suggest that the remarkable preservation of call form and function over millions of years should make it possible to lay the groundwork for an *evolutionary monkey linguistics*.

Relevant readings and summaries can be found at the following URL:
`https://sites.google.com/site/philippeschlenkerresearch/home/formal_monkey_linguistics`

Long-chong – a distributive and anti-distributive operator in Taiwanese

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This study presents data and preliminary analysis on the Taiwanese expression *long-chong* 'all', which has two tonal patterns that are associated with a distributive and an anti-distributive interpretation respectively (Chen, 2000). By 'anti-distributive', I refer to the possibility of having either the collective or the cumulative reading. The goal of analysis is to unify the two interpretations with a core lexical entry, a distributive operator, to model the fact that these two interpretations come from the same expression whose tonal differences follow a general phonological rule, tone sandhi, in Taiwanese. The basic patterns for the two interpretations are shown in (1).

(1) a. *sann*^{7} *e*^{3} *lang*^{5} ***long*^{1}*-chong*^{1}** *iau*^{7}*-chhiann*^{1} *si*^{2} *e*^{3} *cha*^{7}*-bou*^{2}
three CL people **all** invite four CL women
Distributive: 'Each of the three people invited a possibly different set of four women'

b. *sann*^{7} *e*^{3} *lang*^{5} ***long*^{1}*-chong*^{2}** *iau*^{7}*-chiann*^{1} *si*^{2} *e*^{3} *cha*^{1}*-bou*^{2}
three CL people **all** invite four CL women
Anti-distributive: 'Between three people, a total of four women were invited.'

It should be noted that, without *long-chong*, the sentence in (1) can have either a distributive or an anti-distributive reading. In other words, the two versions of *long-chong* force the sentence to have either one of the available readings. Crucially, *long-chong* affects the scoping interpretations between the arguments linearly flank it. This is more obvious in sentences with three arguments. I demonstrate this with sentences where the prepositional phrase precedes the verb. In sentence (2a), where *long-chong* occurs between the subject and the PP, it constrains the scopal interpretation between them. In sentence (2b), when *long-chong* appears between PP and the verb, it constrains the scopal interpretation between PP and the object.

(2) a. *sann*^{7} *e*^{3} *lang*^{5} ***long-chong*** *tih* *si*^{2} *e*^{3} *sou*^{1}*-chai*^{7} *be* *gou*^{3} *e*^{3} *leng*^{1}*-goh*^{4}
three CL people **all** in four CL places buy five CL apples

Scoping with the distributive *long*^{1}*-chong*^{1}:
three people $>$ (four places $\geq$ five apples); 12 places and 15 apples or 12 places and 60 apples
Scoping with the anti-distributive *long*^{1}*-chong*^{2}:
three people = (four places $\geq$ five apples); 4 places and 5 apples or 4 places and 20 apples

b. *sann* *e*^{3} *lang*^{5} *tih* *si*^{3} *e*^{5} *sou*^{2}*-chai*^{7} ***long-chong*** *be* *gou*^{7} *e*^{5} *leng*^{1}*-goh*^{4}
three CL people in four CL places **all** buy five CL apples

Scoping with the distributive *long*^{1}*-chong*^{1}:
three people $\geq$ (four places $>$ five apples); 4 places and 20 apples or 12 places and 60 apples
Scoping with the anti-distributive *long*^{1}*-chong*^{2}:
three people $\geq$ (four places = five apples); 4 places and 5 apples or 12 places and 15 apples

I use one more example to illustrate that the distribution of these two versions of *long-chong* is limited to available scopal interpretations: In sentences with the prepositional phrase follows the verb and the direct object, the direct object cannot scope over the prepositional phrase. The only possible scopal relationships between the object the the PP are symmetric scope and inverse scope. Consequently, the distributive *long-chong* cannot appear between the direct object and the prepositional phrase, as shown in (3). One possible syntactic account is that the distributive *long-chong* can only be attached before a VP. However, the fact that the distributive *long-chong* can appear before a prepositional phrase in (2a) shows that it is not simply an issue of surface syntactic configuration.

(3) **sann*^{7} *e*^{3} *lang*^{5} *cheng*^{2} *sann*^{7} *chiong*^{3} *leng*^{1}*-goh*^{4} ***long*^{1}*-chong*^{1}** *tih* *si*^{2} *e*^{3} *sou*^{1}*-chai*^{7}
three CL people plant three kind apples **all** in four CL places

I propose a basic lexical entry for *long-chong*, namely a distributive operator following Champollion's (2016) formulation, as shown in (4). The operator distributes the (sub)events to a thematic role (θ) such as agent and theme, and down to a certain level of granularity (C), such as atoms. Consequently the denotation of sentences is modeled in the event semantics framework (e.g., Parsons, 1990). The two possible readings of *long-chong* are accounted for by different settings in the *granularity* parameter: The distributive reading is derived when granularity is set to atoms, as illustrated in (5).

(4) $[\![\text{long-chong/Part}_{\theta,C}]\!] \stackrel{\text{def}}{=} \lambda V \lambda e[e \in {}^*\lambda e'(V(e') \wedge \text{C}(\theta(e')))]$

(5) Composition for (2a), the distributive reading

a. $[\![\text{in four places bought five apples}]\!] = \lambda e[{}^*\text{buy}(e) \wedge \text{4-places}({}^*\text{loc}(e)) \wedge \text{5-apples}({}^*\text{th}(e))]$

b. $[\![\text{long-chong}_{\text{agent, atom}}\text{in four places bought five apples}]\!] = \lambda e[e \in {}^*\lambda e'({}^*\text{buy}(e') \wedge \text{4-places}({}^*\text{loc}(e')) \wedge \text{5-apples}({}^*\text{th}(e')) \wedge \text{Atom}(\text{agent}(e'))]$

c. $[\![\text{Three people long-chong}_{\text{agent, atom}}\text{ in four places bought five apples}]\!] = \exists e[\text{3-people}({}^*\text{agent}(e)) \wedge e \in {}^*\lambda e'({}^*\text{buy}(e') \wedge \text{4-places}({}^*\text{loc}(e')) \wedge \text{5-apples}({}^*\text{th}(e')) \wedge \text{Atom}(\text{agent}(e'))]$

The anti-distributive reading is derived when granularity is set to the maximum set, illustrated in The anti-distributive *long-chong* shares the same compositional path, with the granularity parameter set to 'maximal set'. The composition is shown in (6). The crucial difference is that when in distributing to the the maximal set in the dimension of the agent, which contains only one set (the set of three people), it only distributes once, thus deriving the reading where the three people as a group visited four places in total, consistent with a collective or a cumulative reading.

(6) Composition for (2a), the cumulative/collective reading
$[\![\text{Three people long-chong}_{\text{agent, maximal set}}\text{ in four places bought five apples}]\!] = \exists e[\text{3-people}({}^*\text{agent}(e)) \wedge e \in {}^*\lambda e'({}^*\text{buy}(e') \wedge \text{4-places}({}^*\text{loc}(e')) \wedge \text{5-apples}({}^*\text{th}(e')) \wedge \text{Maximal\_set}(\text{agent}(e'))]$

This proposal makes subtle predictions on the grammaticality of sentences with the distributive *long-chong*. For the sentence in (3), it predicts a reading where the PP scopes over the direct object, as shown in (7a). For a sentence where the distributive *long-chong* follows the verb, it predicts a symmetric distributive, thus a cumulative reading, as shown in (7b). These are not the interpretations of the distributive *long-chong* in other contexts, and the occurrences of the distributive *long-chong* in these configurations happen to be ungrammatical. The anti-distributive *long-chong* are possible in these configurations and the composition would result a non-distributive reading.

(7) Predicted interpretations for the distributive *long-chong* in ungrammatical configurations

a. $[\![\text{Three people planted four kinds of trees long-chong}_{\text{agent, atom}}\text{in five places}]\!] = \exists e[\text{3-people}({}^*\text{agent}(e)) \wedge \text{5-places}({}^*\text{loc}(e')) \wedge e \in {}^*\lambda e'({}^*\text{plant}(e') \wedge \text{4-kinds-of-trees}({}^*\text{th}(e')) \wedge \text{Atom}(\text{agent}(e'))]$

b. $[\![\text{Three people invite long-chong}_{\text{agent, atom}}\text{ four women.}]\!] = \exists e[\text{3-people}({}^*\text{agent}(e)) \wedge \text{4-women}({}^*\text{theme}(e)) \wedge e \in {}^*\lambda e'({}^*\text{invite}(e') \wedge \text{Atom}(\text{agent}(e')))]$

One dimension that the present account has not touched upon is the anti-distributive *long-chong*'s restriction in distribution: it has to be licensed either by a measurement expression, such as the numerals in the examples of the current object, or certain types of expressions that implies a judgment on measurement and quantity. (e.g., 'These men *long-chong* only brought this chair'). Similar patterns are also observed for *together* in English. It remains to be seen whether a measurement-based analysis that has been proposed for *together* (e.g., Moltmann, 2004) is compatible with the goal to unify both interpretations of *long-chong*.

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A Generalized Quantifier Approach to Embedded Interrogative Clauses

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1. Introduction: This study proposes a new semantic analysis on the embedded interrogative, encompassing not only the regular embedded interrogative found in English, but also the Agent-Oriented Adjoined Interrogative (AOAI) found in Japanese and Korean, as given in (1) below. It claims that this latter somehow surprising construction is analyzed in the same way as the regular embedded interrogative, in the sense they both involve quantification of the possible world with the only difference being the selectional property of the ⟦+wh⟧ feature.

(1) [***d-are-ga*** ***kur-u-ka*****]** ***nozoi-ter-u.*** [Agent-Oriented Adjoined Interrogative]
wh-person-NOM come-PRS-ka peep-PRG-PRS
'I am peeping (in order to know) who comes.'

This idea is different from Tomoika's (2015, 2016) view of "Existential Disclosure Approach," which hypothesizes that the *wh*-clause is post-lexically selected at the complex predicate level, by making what has been existentially bounded term disclosed.

2. Generalized Quantifier Analysis: The ⟦+wh⟧ feature in the interrogative functions as a quantifier, with its scope the main clause and its restrictor the embedded clause, analogized with the generalized quantifier proposed for the DP domain. This ⟦+wh⟧ specifies the relation between the sets but imposes a restriction on its scope, bringing about the typological difference among languages.

Let us see this mechanism more specifically. First, this analysis differentiates the ⟦+wh⟧ feature and the personal information in "***wh- -o***" and "***d- -are***" and endows a quantificational interpretation to the former element (=[2]c). Second, the morpheme "***-ka***" is considered to exist in the Head, CP, contributing to the set creation process; existentially closing the lambda terms off if it is a type *e* term and making a set based on the lambda term of type *s* (=[2]b). Third, the entire interrogative clause is moved to a higher position to have a configuration of [[Quantifier - Restrictor] Scope] (*i.e.*, [[**[wh-]**$_{\textbf{quantifier}}$ **[-o comes]**$_{\textbf{restrictor}}$]$_i$ [**I know t**$_i$]$_{\textbf{scope}}$]) --- a structure similar to the QP configuration in the DP domain (*e.g.*, [[every man]$_i$ he likes t$_i$]), with the only difference being the type of the set (= [2]f); in the DP domain, the restrictor is a set of entities, while in the case of interrogative, it is a set of worlds. In the case of the regular interrogative, it starts from the complement of the verb, while AOAI originates in the adjunction (the purpose phrase adjoined). Fourth, the ⟦+wh⟧ feature has a restriction on its scope (*i.e.*, main clause); in English, propositions in the Epistemic Modal Base the only propositions selected by the ⟦+wh⟧ (=[2]e), while Japanese embedded interrogative is more generous to accept other type of set of propositions (=[2]e, g). In this way, the typological difference between the English-type embedded interrogative and the Japanese-type embedded interrogative is attributed to the difference of the type of selectional property

of the ⟦+wh⟧ feature.

(2) a. [[**-o comes**]] =[[***-are-ga kur-u***]]= $\lambda x.\lambda w.[come'(x,w) \wedge human'(x,w)]$

b. [[**φ -o comes**]] =[[***-are-ga kur-u-ka***]]= $\{p: p = \lambda w.\exists x.[come'(x,w) \wedge human'(x,w)]\}$

(→FA of [[-*ka*]] and (2)a)

c. [[**wh-**]]=[[**d-**]] = $\lambda E.\lambda M.\forall p \in E.\exists t \in D_t.\forall w \in \cap M.p(w) = t.$

d.[[**wh- φ -o comes**]]=[[***d- -are-ga kur-u-ka***]] = λM.∀p ∈ $\{p: p = \lambda w.\exists x.[come'(x,w) \wedge human'(x,w)]\}.\exists t \in D_t.\forall w \in \cap M.p(w) = t.$ **(→ FA of (2)b and (2)c)**

e. [[**I know *t***]] = EP (=Epistemic Modal Base: a set of propositions that I know)

f.[[[**wh- φ -o comes**]$_i$ **I know *t*$_i$**]]=[[[***d- -are-ga kur-u-ka***]$_i$ **t$_i$** ***sit-ter-u***]] = λM.∀p ∈ $\{p: p = \lambda w.\exists x.[come'(x,w) \wedge human'(x,w)]\}.\exists t \in D_t.\forall w \in \cap EP.p(w) = t.$

(→ FA of (2)d and (2)e)

g. [[***t nozoi-ter-u***]] = TEL (= Teleological Modal Base: a set of propositions expressing the goals in the event of "peeping")

h.[[[***d- -are-ga kur-u-ka***]$_i$ **t$_i$** ***nozoi-ter-u***]] = λM.∀p ∈ $\{p: p = \lambda w.\exists x.[come'(x,w) \wedge human'(x,w)]\}.\exists t \in D_t.\forall w \in \cap \text{TEL}.p(w) = t.$ **(→ FA of (2)d and (2)g)**

3. Conclusion and Future Direction: This presentation provides a view that the embedded interrogative clause selects the main clause, contrary to the common view that the predicate in the main clause is responsible for the embedded CP selection: ***d-*** 'wh-' specifies the relation between the two sets and one of them is created with the aid of ***-ka***.

As acknowledged by previous researchers, this latter element, ***-ka***, is found a lot of different expressions: the existential quantifier (Kratzer and Shimoyama 2002), epistemic modality (*i.e.*, *mosi-**ka***-sur-u-t**o** and ***ka**-mo-sir-e-nai*; notice that the latter periphrastic modal expression has almost the same syntactic configuration as the regular embedded interrogative), disjunct (Tonoike 2015) and archaic *kakari-musubi* construction. All of them are used to mark a particular kind of *uncertainty*. It is desired that the future study should properly reveal how the set-creating ability of this morpheme serves in these constructions.

4. References: Tomioka, Satoshi (2015) *Purposeful Questions: Agent-Oriented Embedded Questions in Japanese and Korean*. Handout at the talk at NINJAL, on Dec. 20th, 2015. **Tomioka, Satoshi** (2016) Purposeful Questions in Japanese and Korean: A New Embedding Strategy. Handaout at Friday Speaker Series at Georgetown University. Feb, 26th 2016. **Jooyoung Kim and Tomioka, Satoshi** (2014) Two Types of Unselected Embedded Questions. In Robert E. Santana-LaBarge (ed.) *Proceedings of the 31st West Coast Conference on Formal Linguistics*, 276-284.