# California Universities Semantics and Pragmatics (CUSP)

First annual meeting, May 23-24, 2009
UCLA Public Affairs Building, room 2250

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<td>The asymmetric distribution of quasi with temporal connectives</td>
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<td>Calculating scalar implicature in English and ASL</td>
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<td>Free choice of the irgend kind: not as wide as you might think</td>
<td>Sven Lauer</td>
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<td>12:30 – 1:10</td>
<td>Deontic modals are not required to form a scale</td>
<td>Gwen Gillingham</td>
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Thanks for all your help getting CUSP off the ground this first year! CUSP was generously supported by the UCLA Linguistics Department, the UCLA Humanities Division, and the UCLA Graduate Linguistics Circle.

Parking: It will be easiest if you park in P3, north of the conference location. To do this, you will need to purchase a daily parking pass ($9) at a parking booth – represented by the 'i' information circles on the map – and then use that pass to access P3. It is also possible to use these passes for P2.
The asymmetric distribution of quasi with temporal connectives

Patricia Amaral (Stanford University) & Fabio del Prete (Stanford University/University of Milan)

This paper analyzes a puzzling asymmetry between the Italian temporal connectives prima ‘before’ and dopo ‘after’ which is observed when they are modified by the approximative adverb quasi ‘almost’. While quasi prima in (1a) is interpreted as ‘shortly after’, quasi dopo in (1b) is not interpreted as ‘shortly before’ and yields an unacceptable sentence:

(1) a.  L’avventura è terminata quasi prima che iniziasse.
‘The adventure ended almost before it started.’

b.  ? L’avventura è iniziata quasi dopo che è finita.
‘?The adventure started almost after it ended.’

Our proposal relies on: (a) an analysis of quasi as a scale-sensitive particle, and (b) an asymmetric analysis of prima and dopo in which the former has the meaning of the temporal comparative più presto ‘earlier’ while the latter denotes a binary relation of temporal succession between events.

We propose a focus-based analysis of quasi: the adverb quasi modifies a focused constituent which provides a set of scalar alternatives to its semantic value. The meaning of a sentence with quasi encompasses the following two components: (α) negation of the modified constituent; (β) existential quantification over alternatives that are lower ranked with respect to the semantic value of the focused constituent, and are situated closely to it, in a contextually relevant sense of ‘closeness’.

We analyse prima as the temporal comparative più presto ‘lit. more early’, and assume that quasi modifies the comparative marker più ‘more’, thus activating a set of scalar alternatives to its semantic value and selecting for a lower ranked alternative from the scale more > as much as > a bit less. According to this analysis, in (1a), (α) is the proposition that the adventure started at least as early as it ended (see [5a]). If the selected alternative to more were as much as, (1a) would entail that the adventure ended at the same time as it started. This entailment is discarded on the basis of general knowledge about the temporal ordering of startings and endings, and (β) is instantiated through a bit less:

(5a)  ¬∃d [¬∃e[started(the-adventure, e) ∧ τ(e) ≤T d] ∧ ∃e[ended(the-adventure, e) ∧ τ(e) ≤T d]] [In prose: the adventure ended not earlier than it started]

(5b)  ∃d [∃e[started(the-adventure, e) ∧ τ(e) ≤T d] ∧ ¬∃e[ended(the-adventure, e) ∧ τ(e) ≤T d] ∧ ∃d’ [d ≤T d’ ∧ close(d, d’) ∧ ∃ e[ended(the-adventure, e) ∧ τ(e) ≤T d’]]] [In prose: the adventure ended shortly after it started]

On the other hand, (1b) is bad because the modified temporal phrase headed by dopo does not contain any scalar element that quasi could modify. Contrary to natural expectations about prima and dopo being mirror-images of one another, we follow Del Prete (2008) in assuming that dopo is not a temporal comparative. The lexical entry we assume for dopo specifies its meaning as a binary relation of temporal succession between events which is not part of any natural scale, hence dopo cannot be modified by quasi.

Our analysis sheds light on the sensitivity of quasi to scale structure and in particular on the interaction of quasi with the semantics of comparatives. This paper provides further evidence for a separate semantic analysis of prima and dopo.
Uninformativity and Focus in Questions  
Scott AnderBois, UCSC

As a functional category, questions (i) introduce alternatives, raising the issue of which alternative holds; (ii) are not informative; and (iii) oblige the addressee to immediately resolve the issue(s) raised. Cross-linguistically, questions are often formed through a combination of focus and indefinites. Previous theories of the role of focus in questions (e.g. Beck (2006), Eckhardt (2007)) differ in the details, but agree that focus is responsible for property (i). Our present goal is to provide a theory of the semantics of questions in which focus instead accomplishes (ii) by presupposing the informative component of an indefinite or disjunction. The theory is demonstrated for questions in Yukatek Maya, a language where focus is crucial in question formation as in (1).

(1)  
\[
[m\text{\textalpha}x]_{\text{\textalpha}}\text{uk′ le sa′-o′}
\]
who drink.AGENT.Focus the atole-DISTAL

‘Who drank the atole?’

Indefinites, not focus, are responsible for (i) since indefinites are not only informative, but also inquisitive (Groenendijk (2007), Mascarenhas (2008)). Formally, we take the denotation of a question or assertion to be a reflexive, symmetric subset of $W \times W$ (NB, not necessarily transitive) where the inclusion of a pair in a denotation encodes that the difference between two worlds is not at issue in the discourse. The denotation for $[\text{drink-atole'(juan)}]$ is the boxed subrelation in the left diagram$^1$. An indefinite (Left) not only eliminates $w_{\emptyset}$, it also disconnects the pair $(w_j, w_d)$, introducing alternatives (as in Kratzer & Shimoyama (2002)) and also raising the issue of which alternative holds.

\[
[\exists x: \text{drink-atole'}(x)]
\]

Focus bears an existential presupposition, ensuring an input state (Right) where $w_{\emptyset}$ is already eliminated. When an indefinite is focused, (1), the at-issue component (Left) is inquisitive – since it disconnects $(w_j, w_d)$ – but is not informative since it does not eliminate any worlds. The properties in (i) and (ii) are met and (1) is interpreted as a question. The account can be readily extended to alternative questions, (2), where a disjunction takes the place of the indefinite.

(2)  
\[
[m\text{\textalpha}a\text{\textalpha}\text{Daniel}\text{\textalpha}\text{uk′ le sa′-o′}]
\]
Juan OR Daniel drink.AGENT.Focus the atole-DISTAL

‘Is it Juan who drank the atole or is it Daniel?’

References:  

$^1$Subscripts on worlds indicate the exhaustive list of who drank the atole in that world. For expository purposes, we assume a domain with only 2 individuals: Juan and Daniel.
Exceptional Scope as Scopal Independence
Adrian Brasoveanu, Donka F. Farkas — UC Santa Cruz

I. The Problem This paper provides a strictly compositional account of the exceptional scope (ES) of indefinites by using only first-order variables over individuals. ES is exemplified by (1) below, the three readings of which are listed in (2), (3) and (4). We focus on the IS reading in (3) because it is the existence of this reading that has proven the exceptional nature of the scope possibilities of indefinites (cf. Fodor & Sag 1982).

1. Every student read every paper that a professor recommended.
2. Narrowest Scope (NS): for every student $x$, for every paper $y$ such that there is a professor $z$ that recommended $y$, $x$ read $y$.
3. Intermediate Scope (IS): for every student $x$, there is a professor $z$ such that, for every paper $y$ that $z$ recommended, $x$ read $y$.
4. Widest Scope (WS): there is a professor $z$ such that, for every student $x$, for every paper $y$ that $z$ recommended, $x$ read $y$.

II. Outline of the Account Our account is based on a minimally modified first-order language that has restricted quantification, so that in a formula $\forall x[\phi](\psi)$, the restrictor is $\phi$ and the nuclear scope is $\psi$. We define a compositional translation procedure from English into (a higher-order version of) this language in the usual Montagovian way. The main novelty is that while in standard Tarskian languages, evaluation indices are single assignments, in the language we define the indices of evaluation have a more articulated structure.

We add structure in two ways. First, we evaluate formulas relative to sets of assignments $G, G'$ etc, a move independently motivated by quantificational and modal subordination. A set of assignments $G$, which can be represented as a matrix with assignments as rows, enables us to encode when a quantifier $Q'y$ is not dependent on another quantifier $Qx$ by requiring the variable $y$ to have a fixed value relative to the varying values of $x$: for all $g, g' \in G$, $g(y) = g'(y)$, while leaving open the possibility that $g(x) \neq g'(x)$. Thus, using sets of assignments enables us to state that $y$ does not covary with $x$ – which means that the quantifier $Q'y$ is not in the semantic scope of $Qx$, though it can very well be in its syntactic scope. Separating syntactic scope from semantic scope is a main feature of our proposal. Second, our indices of evaluation contain the sequence of variables $\langle x_1, \ldots, x_n \rangle$ introduced by the previous quantifiers (much like the partial assignments of classical DRT/FCS). These are the variables an indefinite could covary with. When we interpret an indefinite, we choose a position $m$ and break $\langle x_1, \ldots, x_n \rangle$ into two subsequences: the initial one $\langle x_1, \ldots, x_m \rangle$ stores the variables that the indefinite covaries with, while the final one $\langle x_{m+1}, \ldots, x_n \rangle$ stores the variables that the indefinite does not covary with. We therefore dub the resulting language Choice-FOL or C-FOL for short.

An existential quantifier $\exists^m x[\phi](\psi)$ is interpreted relative to a sequence of variables $\langle x_1, \ldots, x_n \rangle$ introduced by a sequence of $n$ quantifiers that take syntactic scope over the existential quantifier. The superscript $m$ on the existential indicates that only the first $m$ universal quantifiers also take semantic scope over the existential: $m$ indicates the non-variation of the existential with respect to the quantifiers following the $m^{th}$ one. The IS reading for sentence (1) above is translated in C-FOL as shown in (5) below. The crucial component is the superscript on $\exists^1 z$, which indicates that only the first universal quantifier $\forall x$ takes semantic scope over the existential. The other two readings are obtained by simply changing this superscript to the other two possible values it can take: we get the NS reading if the superscript is 2 and the WS reading if the superscript is 0. Thus, the scopal properties of the indefinite are locally, i.e., strictly compositionally, determined.

5. $\forall x[student(x)](\forall y[paper(y) \land \exists^1 z[professor(z)](recommend(z, y)))(read(x, y))).$
Quantification at a Distance and (Un)Reducibility
Heather Burnett (UCLA)

In French, members of a certain class of adverbial quantifiers, exemplified here by beaucoup ‘a lot’, may quantify over the direct object not only from a position adjacent to it (Canonical Quantification (CQ)), but also ‘at a distance’ from a preverbal position (1b) (QAD).

(1) a. J’ai lu beaucoup de livres (CQ) b. J’ai beaucoup lu de livres (QAD)
    I-have read a-lot of books                I-have a-lot read of books
    ‘I read a lot of books’

As noticed by Kayne (1975), the position of beaucoup in (1b) is the same as when beaucoup appears as a ‘pure’ adverb (2): a unary generalized quantifier over events.

(2) Je suis beaucoup allée au cinéma ‘I went to the movies a lot’

While this construction has been greatly studied from a syntactic point of view, model-theoretic semantic analyses of QAD are rarely provided. In this paper, I provide a new compositional semantic analysis for the Quantification at a Distance construction in French.

Although, at first glance, (1a,b) seem synonymous, as noticed by Obenauer (1983), the QAD sentence is subject to a multiplicity of events requirement: while CQ sentences are possible with VPs with all types of event structure, QAD sentences are only possible with VPs denoting multiple events. If a prepositional phrase such as d’un coup ‘at one shot’ is inserted to force a ‘single event’ reading, the QAD sentence is ungrammatical (3b).

(3) a. D’un coup, j’ai trouvé beaucoup de pièces d’or (CQ)
    ‘At one shot, I found a lot of gold pieces’

b. *D’un coup, j’ai beaucoup trouvé de pièces d’or (QAD)

I show that QAD sentences additionally have a multiplicity of objects requirement; that is, in most dialects of European French, QAD sentences in which a single object participates in multiple events are judged false: J’ai beaucoup lu de livres is not true if I have read the same book over and over again. Thus, in QAD sentences, quantification by beaucoup seems to take place not only over the event variable in the verb, but also over the direct object.

To account for this data, I argue that the eventive adverb beaucoup in (2), whose domain is unary relations, extends to binary relations in the following way:

(4) \( \forall R \in [E \times E \rightarrow \{T, F\}], BCP(R) = 1 \iff \) 
    \( | \{ e : \exists x(< e, x >\in R) \} | = \text{a lot} \& | \{ x : \exists e(< e, x >\in R) \} | = \text{a lot} \)

Following Mathieu (2004), I propose that French de phrases are combined via an intersective semantic compositional rule that intersects the de phrase with the direct object co-ordinate of the verb. After the subject is added, beaucoup takes the entire relation as its argument. Thus, [[J’ai beaucoup lu de livres]] = BCP({< e, x >: Reading(e, I, x) & Book (x))}.

Finally, I show that, not only does a binary quantification analysis of QAD properly account for the interpretations assigned to QAD sentences, it is the only way of doing so. I give a proof using Keenan (1992:211)’s Reducibility Equivalence Theorem that the binary extension of beaucoup in (4) is unreducible to any iteration of unary quantifiers. I therefore conclude that a polyadic approach to QAD phenomena is not only possible, but necessary for the syntactic and semantic analysis of this famous construction.

The modality of aspect in Badiaranke
Rebecca T. Cover – University of California, Berkeley

Aspectual semantics in Badiaranke cannot be adequately analyzed either within “viewpoint” theories of aspect (e.g. Smith 1997), or within a neo-Reichenbachian model (e.g. Klein 1994). Two types of Badiaranke data pose problems for these theories. First, the perfective marks not only completed events (expected on such analyses) (1), but also present states (unexpected) (2).

(1) das- 3sg.PERF de.
    laugh de.
    ‘He laughed.’

(2) baj- 3sg.PERF de.
    black de.
    ‘He is black.’

Second, the imperfective marks not only in-progress (3) and habitually recurring eventualities (4), as expected, but also future (5) and epistemically probable eventualities (6), which is not expected.

(3) ha: to: mpo- pe:s.
    until now 3sg.- sweep.
    ‘She’s still sweeping.’

    daily sun DET 3sg.IMPERF- come.out de.
    ‘Every day the sun comes out.’

(5) nose nø mpo- tʃimø de.
    child DET 3sg.IMPERF- sing de.
    ‘The child will sing.’

    morning of today DET 3sg.- enter P America
    ‘This morning she’ll likely have entered America.’ (Spoken at noon.)

I develop a modal analysis for the Badiaranke perfective, built around the notion of historical alternatives (Kaufmann et al. 2006). The historical alternatives (HA) to a base world \( w \) at time \( t \) are those worlds that are identical to \( w \) up to and including \( t \), but diverge from \( w \) after \( t \). The Badiaranke perfective, I argue, expresses that in all HA to \( w \) at \( t \), there is an eventuality \( e \) and time interval \( i \) such that the eventuality description \( P \) holds of \( e \) at \( i \). By definition of HA, then, the perfective may only be used if \( i \leq t \). This accounts for the perfective’s non-future meaning. The different temporal interpretations of states and non-states, meanwhile, spring from differences in their Aktionsart properties. A stative \( P \) can be true of \( e \) at a moment, due to states’ subinterval property. Hence the default choice of \( i \) will be perspective time itself (see Jackson 2005). In contrast, a non-stative \( P \) can only be evaluated at a non-singleton interval. Because the proposition must be true in all HA of \( w \) at \( t \), \( i \) must be an interval whose endpoint \( \leq t \).

I give a similarly modal analysis for the Badiaranke imperfective, one which unifies the aspect’s apparently disparate uses. The imperfective indicates that in all the best possible worlds \( w’ \), according to a given modal base (MB) and ordering source (OS), as evaluated from \( w \) at \( t \), \( \exists e \) and \( \exists i \) such that \( P \) holds of \( e \) at \( i \). Contextual factors determine the choice of MB and OS, which in turn determines the flavor of imperfective meaning. For progressive and habitual uses, I adopt Portner’s 1998 analysis of the English progressive (circumstantial MB, non-interruption OS), modulo plural eventualities for the habitual case (Ferreira 2004). Future meaning arises with a circumstantial MB and bouletic or inertial OS (as in Copley’s 2002 analysis of futurates); epistemic meaning with an epistemic MB and stereotypical (or other) OS.

On this analysis, then, both the perfective and imperfective in Badiaranke combine modal and aspectual semantics. As operators on eventuality descriptions (cf. Tonhauser 2006), whose temporal interpretation and applicability depends on aspectual properties of the predicate, they are aspectual; in quantifying over possible worlds, they are modal as well.
Calculating Scalar Implicature in English and ASL: A New Experimental Methodology
By Kathryn Davidson, Ivano Caponigro, Rachel Mayberry (UCSD)

Recently there has been a large body of research, both experimental and theoretical, investigating 'scalar implicatures,' the name given to the inference in (1b) that is made by a listener when a speaker utters (1a).

(1a) Speaker Says: Some of the cookies are on the table.
(1b) Hearer Infers: Not all of the cookies are on the table

Experiments have been conducted on the timing, acquisition, and effect of context on scalar implicatures in an effort to address the theoretical question of, roughly, whether this kind of inference is due to Gricean pragmatic reasoning or to a grammatical mechanism that is part of the compositional semantics (see Geurts 2009 for overview). Since these results have not yet settled the debate, we propose a new testing paradigm based on video stimuli. One important application for this new paradigm is to investigate the behavior of deaf signers who were born to hearing families and did not learn their first language, a sign language, until later in life. These individuals have no congenital cognitive impairments but do show subtle but verified linguistic deficits due to lack of early linguistic input, and so they may be able to help answer questions of what is linguistic and what is extra-linguistic reasoning. This video paradigm also allows for investigation of gesture and other contextual visual cues, which, like intonation, we expect might be more important to understanding pragmatic phenomenon than has typically been assumed.

In this talk, we present data obtained in this video paradigm comparing native speakers of English and native signers of American Sign Language on interpretation of four scales, looking at any cross-linguistic or cross modality differences and providing a baseline for further studies on non-native signers. The experiment is created in Psyscope for use on a computer. Each trial consists of a picture and an accompanying video presented simultaneously on the screen in which a speaker (English) or signer (ASL) produces a sentence describing the picture. Participants used non-linguistic input devices (smile and frown keys) to indicate their satisfaction of the sentence produced in the video as a description of the picture. Results for use of the paradigm in English on 12 hearing native English speakers show rates of scalar implicature calculation for the scales <all, some>, <and, or>, and <3,2> are consistent with results reported in the literature. Based on theoretical work by Schultz and Van Rooij (2006) and Spector (2007) and our hypothesis that spatial classifiers in ASL may effect interpretation of lists, we also included exhaustive listing as a fourth "scale." Stimuli were presented among both felicitous and infelicitous controls, and items were counterbalanced between participants.

We are currently in progress collecting data from native signers of ASL in the ASL portion of the experiment to establish whether signer's behavior in ASL is different from what we expect based on spoken languages. Since the logical connectives <and, or> are not used with the same frequency and in the same way as English and other spoken languages that have been studied, this may not be a trivial point for all scales. We see these results as setting a baseline for further studies on how development, gesture and space affect reasoning about scalar implicatures.

Deontic Modals are not Required to Form a Scale

It is standardly assumed that deontic modals can be placed into an entailment scale (Levinson 1983 *ao*). A deontic necessity modal such as “must” asymmetrically entails a deontic possibility modal such as “may.” Therefore the utterance of a sentence with “may” (1) should implicate the falsity of a stronger sentence with “must,” (2) from a Gricean point of view, leading to the inference in (3):

(1) John may go to the party.
(2) John must go to the party.
(3) It is not the case that John must go to the party.

However, behavioral measures from Gillingham (2007) indicated that subjects were drawing inferences from (1)-(3) in only 10% of trials for a verbal deontic modal scale <require, allow>. However, puzzlingly, subjects were able to make an inference from the negation of a deontic necessity modal (“not required”) to the falsehood of the negation of a deontic possibility modal (“not allowed”) in > 50% of trials. This result was surprising, as the results of Gillingham (2007) generally indicated that subjects were more able to compute scalar implicatures in the absence of sentential negation for other scales.

In the current paper, I develop an analysis as to why verbal deontic modals patterned differently from other scales. This will hinge on the syntactic structure in which stimuli were presented in the verbal deontic modal conditions in Gillingham (2007). Since modal auxiliaries are mobile in scope with respect to sentential negation, the stimuli presented verbal modals, which exhibit rigid scope with respect to negation. In order to maintain parallel syntactic structures with modal auxiliaries, the stimuli were presented in the passive, as below in (4) and (5):

(4) John was allowed to go to the party.
(5) John was not required to go to the party.

The external argument, left tacit in each of these sentences, provides the ordering source that generates the modal base for “require” and “allow.” As I will show, an asymmetry exists between these two sentences, whereby (4) expresses a weak, existential entailment in terms of potential ordering sources, whereas (5) expresses a strong, universal negative entailment. In essence, realizing that (4) implicates (5) requires keeping constant the choice of ordering sources; whereas realizing that (5) implicates (4) does not. This, I claim, is the source of the asymmetry observed by Gillingham (2007): counter-factual evaluation of these sentences makes an inference from (4) to (5) illicit, but an inference from (5) to (4) licit, which causes subjects to more successfully make the second type of inference.

This leads to the hypothesis that making the external argument of these modals explicit should permit subjects to more successfully draw scalar inferences. To this end, subjects’ ability to compute implicatures in reaction to stimuli like those in (4) and (5) will be compared to their behavior when faced with stimuli sentences like those in (6) and (7):

(6) The dean required John to be at the party.
(7) The dean did not require John to be at the party.

Making scalar inferences should be facilitated for sentences such as (6) as compared to (4); however, no significant difference should be observed between (7) and (5). On the other hand, if no facilitation effect is observed, then this could also provide evidence for Verstraete (2005)’s account that it is not possible to place deontic modals onto a scale, unlike epistemic modals.

References:
Inverse Number Marking in Dagaare

Scott Grimm  Stanford University

The count/mass distinction is often related to a notion of individuation, designating a conceptual divide between objects (individuated and count) and substances (non-individuated and mass). In English, and many other languages, the count/mass divide aligns clearly with the capacity to accept plural marking. Here I examine a radically different system—the inverse number marking system of Dagaare (Gur; Niger-Congo), wherein a single morpheme -ri sometimes marks the plural interpretation and sometimes the singular, depending on the noun, as shown below:

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<th>Plural</th>
<th>Stem</th>
<th>Gloss</th>
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<tbody>
<tr>
<td>bie</td>
<td>biiri</td>
<td>bi-</td>
<td>‘child’</td>
</tr>
<tr>
<td>biri</td>
<td>bie</td>
<td>bi-</td>
<td>‘seed’</td>
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</tbody>
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This system does not easily align with standard semantic operators for plural formation and appears contrary to the principle of markedness, which would normally dictate that only the singular is unmarked. Based on results from recent fieldwork, I argue that this system is indeed well-behaved and semantically based. In essence, a noun’s level of individuation determines whether it is lexically singular or plural and -ri serves to invert the lexical number value, a view which lends itself to a straightforward formal analysis.

The fieldwork I undertook examined whether markedness patterns in the count domain correlate to semantic distinctions of levels of individuation, hypothesizing that the more likely the entity is to be viewed as individuated, the more likely the singular will be unmarked and -ri will mark the plural, while the more likely the entity is to be viewed as coming in groups or non-individuated, the more likely the plural will be unmarked and -ri will mark the singular. If individuation has such an effect on the distribution of -ri, one should observe distributional asymmetries in the appropriate semantic domains. For instance, larger (more salient) animals should be more likely to be unmarked in the singular than insects, as should trees in comparison to vegetation, and tools should be more likely to be unmarked in singular, as they are canonically individuated insomuch as we interact with them individually (see Wierzbicka 1988). The lexicon assembled during my field research validated this hypothesis. Having coded for (relatively transparent) semantic domains, reliable asymmetries were quantitatively visible across the semantic domains. In particular, higher level animates, trees and tools are typically unmarked in the singular, whereas insects and vegetation have a majority of nouns for which the plural is unmarked.

**Formal Analysis:** Given that Dagaare disposes of lexical singulars and lexical plurals, the semantics of -ri is straightforwardly aligned with standard semantic theories of number, treated as a form of negation of the lexical denotation of the base, namely -ri gives the complement of the denotation of the base. As such, the correct interpretations for Dagaare’s noun system result simply from the standard definition of singulars, plurals, and complementation. Singular denotations are taken as atoms and plurals as the closure of atoms under the sum operator (⊕) less the atoms themselves (see Chierchia 1998 inter alia), while -ri is taken as the operation of complementation (C) with respect to the domain of the base noun. Thus, -ri applied to a lexically singular noun will yield a plural denotation, while -ri applied to a lexically plural noun will yield a singular denotation. Below are simplified derivations of lexically singular (‘child’) and plural (‘seed’) nouns:

\[
\begin{align*}
[\text{bi-}] + \text{ri} &= (\text{bi-})^C = [\lambda x (\text{CHILD}(x))]^C = \lambda x [(\text{CHILD}(x))^\oplus - \text{CHILD}(x)] = \text{PL(bi)} \\
[\text{bi-}] + \text{ri} &= (\text{bi-})^C = [\lambda x (\text{SEED}(x))^\oplus - \text{SEED}(x))]^C = \lambda x \text{SEED}(x) = \text{SG(bi)}
\end{align*}
\]
Problem. Non-interrogative subordinate clauses introduced by the wh-word when that receive a temporal interpretation (henceforth, when-clauses), like the bracketed clause in (1), raise at least two puzzles for the syntax/semantics interface (in this paper, we are not dealing with those “non-temporal” when-clauses that behave like conditionals, Farkas and Sugioka 1983). (i) Despite looking like free relatives the few semantic analyses that have been suggested for when-clauses treat them as clauses without a gap in which when does not behave like a wh-word (licensing a variable and restricting its range), but rather a temporal operator that takes two events as its arguments, much like before and after (Moens and Steedman 1988, Bonomi 1997, Vikner 2004). (ii) When-clauses seem to be ambiguous between being anchored to a time point/instant or interval or to an occasion/eventuality as illustrated by the different nominal paraphrases of (1) in (1a-b).

Proposal. (i) We argue that the puzzles above can be accounted for by assuming that when-clauses are what they look like: free relatives. As other free relatives (Jacobson 1995, Caponigro 2004), they end up denoting a maximal “temporal” individual by lambda-abstraction over the variable licensed (and restricted by) the wh-word when and then type-shifting. The when-clause semantically combines with the matrix clause in the very same way as temporal adverbial nominals like the time, the day, the moment, etc. We also investigate the role that aspectual properties of the free relative and the matrix clauses play in the semantic combination. (ii) We argue that the ambiguity of when-clause results from the fact the wh-word when allows the variable it licenses to range both over occasions/eventualities and intervals, with instants being an extreme case of an interval (Bonomi 1997 makes a similar point, though his analysis is radically different). Variety in the range of the variable is attested in other free relatives as well. For instance, free relatives introduced by what can range at least over inanimate concrete/abstract atomic/non-atomic individuals, including propositions (e.g. I don’t like [what you cooked/said/thought/imagined/felt]). Despite some similarities, there are crucial syntactic and semantic differences between when-clauses and then clauses introduced by before and after, which argue against a uniform treatment. (This is not to say that before and after are universally accepted as having a uniform analysis, see Del Prete 2008 for a non-uniform analysis.) For instance, when-clauses can be replaced by then, whereas before and after clauses cannot (2-3). Before and after can take then as their complement, but when cannot (4). Our analysis can account for these facts since it treats when-clauses as denoting an individual, which the anaphoric expression then can refer back to. Also, when is a wh-word in Spec of CP for us, which is therefore not expected to take then as its complement.

1) I came to visit you [when she left].
   a. “I came to visit you at the time/moment she left”
   b. “I came to visit you the time she left”
2) I came to visit you when she left. John visited then, too.
3) I came to visit you before/after she left. *John visited then, too.
   [(3) cannot mean that John visited you at some point before/after she left, i.e. in a situation where she left in May of 2006, I visited in April/June of 2006, and John visited in January/December of 2006.]
4) The party starts at 9:00. I’ll arrive before / after / *when then.

This paper investigates definiteness in Inuktitut (an Inuit language of Arctic Canada) and draws two conclusions: (1) the proper analysis of definiteness in Inuktitut reveals a perfect correlation between definiteness and morphological case, contra Bittner (1994, *Case, Scope and Binding*, Springer), and (2) the Inuktitut facts undermine Fodor and Sag's (1982, *L&P* vol. 5) claim that indefinites are lexically ambiguous between a referential and a quantificational reading.

The absolutive object in bold in (1) must refer back to the previously mentioned seal, while the instrumental object in (2) introduces a new seal. I.e., absolutive objects are definite while instrumental objects are indefinite. (1E=1st person ergative, 3A=3rd person absolutive)

(1)  
\[\text{natsiq } \text{taku-qqau-jara ammalu miali-up natsiq } \text{taku-qqau-mi-janga}\]  
\[\text{seal}_{\text{ABS}} \text{see-}\text{PAST-1E/3A} \text{ and mary-ERG } \text{seal}_{\text{ABS}} \text{see-}\text{PAST-ALSO-3E/3A}\]  
'I saw a seal, and Mary saw the seal, too.' [only one seal]

(2)  
\[\text{natsiq } \text{taku-qqau-jara ammalu miali natsir-mit } \text{taku-qqau-mi-juq}\]  
\[\text{seal}_{\text{ABS}} \text{see-}\text{PAST-1E/3A} \text{ and mary}_{\text{ABS}} \text{seal-INS see-}\text{PAST-ALSO-3A}\]  
'I saw a seal, and Mary saw a seal, too.' [potentially two seals]

However, the absolutive object in the initial conjunct in both cases felicitously introduces a new discourse referent, presenting an apparent counterexample to the correlation of case and definiteness. I claim that this is precisely the behavior of definite NPs that is expected under Russell's (1905, *Mind* vol. 14) original account of definiteness:

(3)  
\[\llbracket\text{the } C\rrbracket = \exists x \ C(x) \& \forall (y) [C(y) \rightarrow y=x]\]

Russell's definites are existential, but carry a uniqueness restriction. It is the uniqueness restriction that disallows the absolutive object in the second conjunct in (1) from introducing a seal distinct from the previously mentioned one. But the uniqueness restriction is vacuous at the NPs first mention, which therefore makes only an existential claim. Definites in Inuktitut differ from their English counterparts in not carrying an existence or uniqueness presupposition, giving the impression of indefiniteness in some contexts, in turn obfuscating the correlation with case.

The definiteness property in (3) correlates with a scope alternation marked by the same morphology (4)-(5).

(4)  
\[\text{natsiq } \text{taku-qqau-ngnit-tara}\]  
\[\text{seal}_{\text{ABS}} \text{see-}\text{PAST-NOT-1E/3A}\]  
'There is a seal I didn't see.'

(5)  
\[\text{natsir-mit } \text{taku-qqau-ngnit-tunga}\]  
\[\text{seal-INS see-}\text{PAST-NOT-1A}\]  
'I didn't see a seal.' (i.e. I saw no seal)

Unlike its English translation, the instrumental indefinite *natsirmit* (a seal) in (5) cannot have a referential interpretation. In Inuktitut, where the scope of an NP is dictated by its case, no referential reading is available in the 'low scope' case, suggesting that referential readings are not inherent properties of indefinites independent of their syntactic context, but rather are contingent on the availability of scope shifting mechanisms (which are marked overtly in Inuktitut), contra Fodor and Sag.
Negation as Commitment Marker by Simone Hartung & Ivano Caponigro, UCSD

Three Puzzles. (i) Polar interrogatives in German allow for two negation markers to co-occur (1), unlike declaratives (2). (ii) Negative polarity items (NPIs) such as sonderlich (~at all) are not licensed in a polar interrogative where the negation marker nicht precedes the object (3). On the other hand, if negation occurs below the object and right before the NPI, or does not occur at all, then the NPI is licensed (4). We call clauses like (1) and (3) ‘high negation polar interrogatives’ (HNPIs) and their (left-most) negation marker ‘high negation’ (HiNeg). (iii) HNPIs always convey a bias. The HNPI in (3) conveys a speaker’s bias regarding the belief that Max liked the cake and asks the addressee to confirm or reject this belief. The HNPI in (1) – containing the standard truth-conditional negation below HiNeg – conveys the opposite bias. On the other hand, positive polar interrogatives convey no bias, while standard negative polar interrogatives like (4) impose different discourse restrictions from HNPIs, as shown by the contrast between (5a) and (5b) in the situation in (5).

Proposal. Although morphologically identical to sentential negation nicht, German HiNeg exhibits different distributional, semantic and pragmatic properties (e.g. (i)-(iii) above). We argue that HiNeg occurs higher in the clause than standard sentential negation, is semantic inert (does not affect truth-conditions), and pragmatically acts as a ‘commitment marker.’ Building on Farkas (2008) and Gunlogson (2008), we assume that a discourse consists of conversational moves in the form of assertions (by means of declaratives with falling intonation) and questions (by means of interrogatives). The discourse structure keeps track of the different moves the discourse participants undertake during the lifetime of the discourse. Asserting a declarative clause has the effect of publicly committing the speaker to its propositional content p (which was in the speaker’s private beliefs before the assertive move). A regular polar interrogative raises an issue without committing the speaker to its propositional content (\{p, \neg p\}). We argue that HNPIs are like standard polar interrogatives in raising an issue (\{p, \neg p\}), but they are unlike them in taking the propositional content of the issue (i.e. p) out of the speaker’s private belief set, similarly to asserted declaratives.

Accounting for some of the puzzles. (i) An HNPI allows for both HiNeg and truth-conditional negation since HiNeg does not affect the propositional content/truth-condition. HiNeg is infelicitous in declaratives because redundant (an asserted declarative moves its propositional content from the speaker’s private belief set to the commitment list by definition). (ii) The licensing of NPIs in interrogatives in general is still far from being understood and we do not have solution for the specific case of NPI licensing in HNPIs. (iii) An HNPI is biased and imposes discourse restrictions because its propositional content was previously in the speaker’s private belief set and there must be reasons to move it out and turn it into an issue. We conclude by analogizing HiNeg to the many conversational particles that are used in German.

(1) Hat **nicht** Max den Kuchen damals **nicht** gemocht? (‘Didn’t Max not like the cake then?’)
   has not Max the cake then not liked

(2) * Max has **nicht** den Kuchen damals **nicht** gemocht.
   Max has not the cake then not liked

(3) Hat Max **nicht** den Kuchen (*sonderlich*) gemocht? ’Didn’t Max like the cake (*at all)?’
   has Max not the cake NPI/at all liked

(4) Hat Max den Kuchen (**nicht**) sonderlich gemocht? ‘Did Max not like the cake at all?’
   has Max the cake not NPI liked

(5) Max and Moritz are students and just finished writing their paper to be submitted to a conference.
   They need someone to proofread their work. Max says: “We want someone who is good at it! Who could we ask?”. Moritz’ reply:

(a) Hat **nicht** Chris schon eoffers Korrektur gelesen? **HNPIs**
   has not Chris already often correction read ‘Hasn’t Chris done proofreading before?’

(b) # Hat Chris noch **keine** Korrektur gelesen? **Standard negative polar interrogative**
   has Chris yet no correction read ‘Has Chris not done proofreading before?’
English nominal counterfactuals (NCs), which have not yet been treated in the literature, consist of a noun phrase embedded under *if not for/if it was not for* (1). Although (1) seems like a perfect paraphrase of (2), NCs systematically differ from these more familiar conditionals. First, the antecedent does not contain a proposition, at least one that can stand alone as such (3). Instead, we have a nominal and obligatory negation. The first question, then, is to understand how to assimilate this construction to a theory of conditionals that makes them operators over propositions [1,2, inter alia].

(1) 
- a. If not for Mary going to the store, we wouldn’t have salsa.
- b. If it weren’t for Mary going to the store, we wouldn’t have salsa.

(2) If Mary hadn’t gone to the store, we wouldn’t have salsa.

(3) 
- a. *Not for Mary going to the store.
- b. *It wasn’t for Mary going to the store.

NCs also differ in the strength of the counterfactuality inference. While propositional counterfactuals only implicate the counterfactuality of their antecedents and consequents, NCs presuppose their counterfactuality. Thus, you cannot use them in informative modus tollens arguments (4), and many speakers find them ungrammatical in concessives (5).

(4) A: John is working late. B: No, he isn’t.
- a. A: (Yes, he is.) If John weren’t working late, he would be home (and he’s not).
- b. A: #(Yes, he is.) If not for John working late, he would be home (and he’s not).

(5) 
- a. If John hadn’t studied hard, he still would have passed.
- b. *If not for John studying hard, he still would have passed.

Finally, NCs resist non-causal inferences like backtracking, in contrast to more familiar counterfactuals (6).

(6) 
- a. If John weren’t a bachelor, he would have to have gotten married (in the past).
- b. *If not for John being a bachelor, he would have to have gotten married (in the past).

I provide an analysis where counterfactuals are interpreted over histories (in an Ockham frame). The idea is that nominal antecedents denote in the space of eventualities, and negation is event(uality)-removal. We go back in time to remove the event(uality) denoted by the nominal, interpreting the consequent in futures that do not contain the event(uality). Since we remove the event from an accessible history, we necessarily move to counterfactual futures. Moreover, since event(uality)-removal yields a set of possible futures, composition can proceed as usual. Finally, since the consequent is interpreted relative to these futures, we can suppress certain non-causal inferences, like backtracking.

We present results from three experiments in a study of ellipsis processing and acceptability. The study demonstrates that syntactic parallelism effects in ellipsis are mediated at the level of information structure and, moreover, that such effects occur independently of ellipsis.

In Experiment 1 we test the hypothesis that reduced acceptability for syntactically mismatched antecedent/target pairs is driven by violation of an information structural constraint enforcing parallel structure for contrastive topics. The hypothesis is tested using stimuli like (1)-(2), where syntactic parallelism is crossed with information structure. Our proposal differs from typical syntactic analyses of ellipsis in predicting greater sensitivity to syntactic mismatch in contrastive topic structures (1a/2b) as compared to structures without contrastive topics (1b/2a). Syntactic analyses do not distinguish between the two mismatch cases (1b/2b) and predict unacceptability for both.

(1) Venomous snakes are easy to identify, parallel-antecedent contrastive-topic  
a. and poisonous plants are as well. yes yes  
b. and most experienced hikers can. no no  
(2) It’s easy to identify venomous snakes,  
a. and most experienced hikers can. yes no  
b. and poisonous plants are as well. no yes

Consistent with our hypothesis, magnitude estimation results show a reliable interaction where the effect of a mismatched antecedent is greater in the contrastive topic condition (2b) than in the non-contrastive topic condition (1b).

In two follow-up experiments we tested the hypothesis that the information structural constraint observed in Experiment 1 operates independently of ellipsis. In Experiment 2, we paired the mismatched ellipses from Experiment 1 (1b/2b) with controls that substituted a full verb phrase for the ellipsis. All stimuli thus exhibited non-parallel structure, and the factors manipulated were contrastive-topic (+/-) and ellipsis (+/-). Magnitude estimation results showed reliable main effects for ellipsis, judged less acceptable than the full VP condition, and for contrastive topic, judged less acceptable than the non-contrastive condition, with no interaction. Thus a lack of parallelism led to reduced acceptability for contrastive-topic structures even in the absence of ellipsis, a finding which challenges theories that attribute mismatch effects to processes of antecedent reconstruction.

In Experiment 3 we recorded self-paced reading times for the stimuli from Experiment 1, modified to include a post-ellipsis spillover region. Consistent with the Experiment 1 results, we found a reliable interaction at the first post-ellipsis region, where a lack of parallelism led to a greater increase in reading times in the contrastive-topic condition as compared to the non-contrastive condition. However, the interaction was also observed in the pre-verbal region (reliable at poisonous, marginal at plants), indicating that a lack of parallelism in a contrastive-topic structure disrupts processing quite early, indeed before the reader has encountered the ellipsis.

We argue that these results prompt a re-examination of the role antecedent mismatch data have played in forming theories of ellipsis, and we present a model of ellipsis processing where defective information structure introduces a penalty which is amplified in ellipsis contexts.
Free Choice of the **irgend** kind: Not as wide as you might think.

Sven Lauer  
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This talk argues that German **irgend**- indefinites, English **-ever** free relatives and the Spanish indefinite **algún** form a natural class to the exclusion of other free-choice items (most notably, English **any**), and should receive a very different analysis.

In particular, following the lead of Alonso-Ovalle and Benito (forthcoming), I show that the rumors of **irgend**-’s domain-widening capabilities\(^1\) have been greatly exaggerated: Take sentence (1), which has **irgend** embedded under an epistemic modal:

(1)  
Hans muss in irgendeinem Raum in diesem Haus sein.  
H. must in **IRGEND**-one room in this house be.  
‘Hans must be in some room in this house.’

While (1) *does* have the implication that the speaker is uncertain as to which room Hans is in, it does not require, in any way, shape, or form, that every room in the house is a live possibility. This contrasts with the behavior under deontic modals discussed by Kratzer and Shimoyama (2002). While the behavior under deontic modals wants explanation, it is clear that their claim that **irgend**- induces *maximal* domain-widening (which in turn triggers an ignorance inference) cannot be held up.

On the positive side, I propose an analysis of **irgend**-style free choice as involving a presupposition-like variation-requirement, which projects in familiar ways out of embeddings, and triggers implicatures of ignorance or indifference when not embedded. Thus the free-choice implication under embedding on the one hand, and in matrix sentences on the other, are assigned different statuses: One is a presupposition, the other an implicature. This is fortunate in view of the fact that under embedding, but not on the matrix level, the free-choice implications triggered by **irgend**- demonstrably behave like presuppositions.

The talk concludes by showing that English **-ever** free relatives are amenable to an exactly parallel treatment, leading to predictions that can be shown to fit the facts better than other recent analyses which, following von Fintel (2000), assume that **-ever** contains a hidden modality.

**References**


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\(^1\) See, e.g. Kratzer and Shimoyama (2002), inspired by Kadmon and Landman’s (1993) popular analysis of **any** as a domain-widener.
Association with foci
Maziar Toosarvandani (University of California, Berkeley)

Expressions like even (and only, among others) have long intrigued researchers because of their unusual interaction with focus. Jackendoff (1972), who calls the phenomenon ASSOCIATION WITH FOCUS, observes that the meaning of a sentence containing even varies focus. I examine this phenomenon from the perspective of expressions that associate with not one but two foci.

In addition to its semantic interaction with focus, even requires the presence of a focus somewhere inside its sister, a property that I call its FORMAL DEPENDENCY ON FOCUS (discussed by Rooth 1996 and Beaver & Clark 2008). Thus, in contrast with (1), (2), is infelicitous since Max’s baby, the DP sister of even, is not focussed.

(1) Q: What does Max’s baby eat?
   A: Even [Max’s BAby]$_F$ eats chard.

(2) Q: What does even Max’s baby eat?
   A: #Even Max’s baby eats [CHARD]$_F$.

I argue that expressions like let alone—which I call DYADIC FOCUS OPERATORS—exhibit a similar formal dependency on focus. But since let alone takes two arguments, it requires the presence of two foci, one in each argument (3). The parallel sentence in (4) is infelicitous since let alone’s two DP sisters, Max and Max’s baby, are not focussed.

(3) Q: Who eats chard? Does Max’s baby eat chard?

(4) Q: What does Max or Max’s baby eat? Do they eat chard?
   A: #I don’t think Max let alone Max’s baby eats [CHARD]$_F$.

I derive the formal dependency on focus exhibited by both even and let alone using Rooth’s (1985) alternative semantics for focus. Even requires that the focus meaning of its single argument contain an alternative other than itself, while let alone requires that its two arguments be distinct alternatives to one another. The two expressions differ, however, in that the position of focus only affects the meaning of sentences with even. This is because even expresses quantification (Rooth 1992, von Fintel 1994): (1) has the meaning in (5).

(5) At-issue: eat(chard)(max’s-baby)
    Presupposed: $\exists p \in C (\text{eat(chard)}(\text{max’s-baby}) \neq p \land \text{eat(chard)}(\text{max’s-baby}) < p)$

(6) At-issue: $\neg \text{think(eat(chard)}(\text{max}))(I) \land \neg \text{think(eat(chard)}(\text{max’s-baby}))(I)$
    Presupposed: $\neg \text{think(eat(chard)}(\text{max}))(I) < \neg \text{think(eat(chard)}(\text{max’s-baby}))(I)$

(1) presupposes that there is a member of a contextually-salient set of propositions that is distinct from the at-issue entailment and ordered higher that it on some scale (e.g. likelihood). This set can be identified with the question under discussion (Roberts 1996), which is constrained by the position of focus. Since in (1) the subject is focussed, even quantifies over proposition of the form ‘x eats chard’. If the focus were located elsewhere (say just on baby), the question under discussion would be different, and consequently the meaning of the even sentence would be different. Since the let alone sentence in (3), whose translation is given in (6), does not express quantification, the position of focus plays no role in determining its meaning.

What it means, then, to associate with focus is to restrict the position of focus in the sentence (the formal dependency on focus). The interpretive effects of focus—if any—arise independently, through contextual domain restriction.