Indefinites and Functional Heads: From Japanese to Salish

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The topic of this talk

• Why do indefinites have the properties they do?

• Starting point: Kratzer & Shimoyama 2002. We looked at indefinites from the point of view of Japanese indeterminate pronouns (Kuroda 1965).
Research Strategy

• Matthewson’s (2001) No Variation Hypothesis: “there are certain fundamental semantic structures or properties which all languages should share.”

• Matthewson’s hypothesis is meant to be no more than a research strategy.
Risks and Gains

• You have to be prepared to go wrong in a big way.

• You are likely to notice that you are wrong when your theories get messier and messier, and messier.....

• Using the strategy, you will try harder to detect hidden properties, and have thus a chance to go beyond obvious typological generalizations.
Why start with Japanese?

- From the point of view of Indo-European languages, quantifier constructions in Japanese look very exotic.

- Kratzer & Shimoyama 2002: From the point of view of Japanese, quantifier constructions in Indo-European languages seem to fall out as special cases.
In Japanese, quantifier phrases are built using indeterminate pronouns (Kuroda 1965).

- **dare** ‘who’
- **nani** ‘what’
- **dore** ‘which (one)’
- **dono** ‘which’ (Det)
- **doko** ‘where’
- **itu** ‘when’
- **naze** ‘why’
- **doo** ‘how’
Quantificational Variability

• Depending on the operator they associate with, Japanese indeterminate phrases can take on existential, universal, interrogative, negative polarity, or free choice interpretations.
Possibly distant operator determines quantificational force

[[Dono hon-o yonda] kodomo] -mo yoku nemutta.
which book-ACC read child- MO well slept
‘For every book x, the child who read x slept well.’

Taro-wa [[dare-ga katta] mochi]-o tabemasita ka?
Taro-TOP who-NOM bought rice cake-ACC ate Q
‘Who is the x such that Taro ate rice cakes that x bought?’

Data from Shimoyama 2001.
Unselective Binding?

• **Nishigauchi 1986, 1990**: Japanese indeterminate pronouns are *Kamp-Heim indefinites*. They introduce variables that are unselectively bound by possibly non-overt quantificational operators.

A conceptual blemish of the Unselective Binding approach

• There have to be semantic binding relations between quantificational operators and indefinite DPs.

• You have to stipulate the properties of that binding relation.
A Hamblin Alternative Semantics for indefinites


• All the virtues of the Unselective Binding approach carry over to a Hamblin Semantics.
Hamblin semantics: Expanding alternatives

• Indefinites introduce a set of individual alternatives.

• That set of alternatives keeps expanding until it meets an operator that wants it.
Building Propositional Alternatives

\[
[[\text{dare}]]^{w.g} = \{ \text{John, Mary, Taro} \ldots \} 
\]

\[
[[\text{nemutta}]]^{w.g} = \{ \text{the property ‘slept’} \} 
\]

\[
[[\text{dare nemutta}]]^{w.g} = \{ \text{‘John slept’, ‘Mary slept’, ‘Taro slept’}, \ldots \} 
\]
Building propositional alternatives

\[
[[\text{dare}]]^{w.g} = \{ \text{x: human(x)(w)} \}
\]

\[
[[\text{nemutta}]]^{w.g} = \{ \Box x \Box w'. \text{slept(x)(w')} \}
\]

\[
[[\text{dare nemutta}]]^{w.g} = \\
\{ p: \Box x [\text{human(x)(w)} \& p = \Box w'. \text{slept(x)(w')} ] \}
\]
Selecting propositional alternatives
Shimoyama 1999, 2001

Taro-wa [[dare-ga katta] mochi]-o tabemasita ka?
Taro-TOP who-NOM bought rice cake-ACC ate Q
‘Who is the x such that Taro ate rice cakes that x bought?’

[Taro ate rice cakes that who bought] Q
↓
creates
alternatives

selects propositional alternatives

\[Q\]
Selecting individual alternatives

Shimoyama 1999, 2001

[[Dono hon-o yonda] kodomo] -mo yoku nemutta.
which book-ACC read child- MO well slept
‘For every book x, the child who read x slept well.’

[The child who read which book] -mo slept well

creates selects individual alternatives
alternatives
A familiar universal quantifier

Shimoyama 1999, 2001

[The child who read *which book*] -mo slept well

creates selects individual alternatives

All members of A slept well:

\[ A = \{ \text{the child who read book a, the child who read book b, the child who read book c, \ldots} \} \]
Intervention effects
Shimoyama 1999, 2001

[...[... indefinite .... ka/mo]......]-ka/mo

* 

- Japanese intervention effects fall out from the architecture of the interpretation system.
Towards a general theory of quantification
• Suppose quantifiers in natural languages can quantify over sets of alternatives of different kinds. We expect, for example:

• **Propositional quantifiers**: Quantify over propositions.

• **Generalized quantifiers**: Quantify over individuals
Propositional Quantifiers

Where A is a set of propositions, we have:

\[ [\exists](A) = \{ \text{the proposition that is true in all worlds in which some proposition in A is true} \} \]

\[ [\forall](A) = \{ \text{the proposition that is true in all worlds in which every proposition in A is true} \} \]

\[ [\forall'](A) = \{ \text{the proposition that is true in all worlds in which no proposition in A is true} \} \]

\[ [Q](A) = A \]  (or other question denotations, see handout)
Generalized Quantifiers

Where A is a set of individuals, we have:

$\square (A) = \{\text{the property of properties that is true of any property if some individual in A has it. }\}$

$\Box (A) = \{\text{the property of properties that is true of any property if every individual in A has it. }\}$

And so on.....
Martin Haspelmath

Typology of Indefinites
Haspelmath’s survey

• The class of indeterminate pronouns in the Japanese sense is not a random collection of indefinites. The same kind of indefinites cluster together in related paradigms in language after language…. 
Latvian, for example

Data from Haspelmath 1997, diacritics omitted

<table>
<thead>
<tr>
<th></th>
<th>Interrogative</th>
<th>\textit{kaut}-series</th>
<th>\textit{ne}-series</th>
<th>\textit{jeb}-series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person</td>
<td>\textit{kas}</td>
<td>kaut kas, kads</td>
<td>ne-viens</td>
<td>jeb-kads</td>
</tr>
<tr>
<td>Thing</td>
<td>\textit{kas}</td>
<td>kaut kas</td>
<td>ne-kas</td>
<td>jeb-kas</td>
</tr>
<tr>
<td>Place</td>
<td>\textit{kur}</td>
<td>kaut kur</td>
<td>ne-kur</td>
<td>jeb-kur</td>
</tr>
<tr>
<td>Time</td>
<td>\textit{kad}</td>
<td>kaut kad</td>
<td>ne-kad</td>
<td>jeb-kad</td>
</tr>
<tr>
<td>Manner</td>
<td>\textit{ka}</td>
<td>kaut ka</td>
<td>ne-ka</td>
<td></td>
</tr>
<tr>
<td>Determiner</td>
<td>\textit{kads, kurs}</td>
<td>kaut kads</td>
<td>ne-kads</td>
<td>jeb-kads, jeb-kurs</td>
</tr>
</tbody>
</table>
The Latvian series: An arbitrary example of an Indo-European Indefinite

• The Latvian ‘bare’ series has interrogatives. The *kaut*-series has existentials. The *ne*-series appears under the direct scope of negation, and the *jeb*-series is found in indirect negation contexts, in comparatives, and also with a free choice interpretation.
Morphological differences

• In contrast to Japanese indeterminate pronouns, many of the Indo-European indefinites are morphologically complex. They are built from a common core and additional material.

• In the best of all possible worlds, it should be possible to derive the differences between Japanese and Indo-European quantifier constructions from those morphological differences.
Importing the Japanese perspective

• Suppose that Indo-European indefinites associate with **independent** quantificational operators, too.

• What might the additional morphological material do?
What might the additional morphological material do?

- At least some of it might be meaningless agreement morphology indicating agreement with non-overt quantificational operators: \([\square], [\square], [\square], [Q]\).
Immediate consequence

• Negative concord is expected

• Ich hab’ keine Fehler nicht gemacht.
  I have no mistake not made.
  I didn’t make any mistakes.
  (German, non-standard)
Ladusaw 1992, 1996 on negative concord constructions

• “The other alternative is to abandon the assumption that any of the n-words in these sentences directly express negation. Rather the expression of negation is associated with an abstract element of clause structure …. the argument n-words are treated as nonnegative indefinites which are obligatorily to be associated with this abstract expressor of clausal negation ...” 1996, 340
Another expectation: Syntactic Intervention Effects (Beck 1996)

(a) * Was hat sie nicht **WEM** gezeigt?
   What has she not to-whom shown
   ‘What didn’t she show to whom?’

(b) Was hat sie **WEM** nicht gezeigt?
    What has she to-whom not shown

• The interrogative pronoun in (a) cannot agree with negation since it does not have a [□] feature.
What is the full set of propositional quantifiers?

• Propositional quantifiers should be related to verbal inflectional heads.
A possible cast of propositional operators


[□] Generic aspect?

[Q] An interpretable [wh]-feature is already commonly posited in C to derive question denotations.

[□] Sentential negation
Interrogative Concord

• Who gave what to whom?

• \[ C_{[wh]} \ldots [wh]o \ldots [wh]at \ldots [wh]om \ldots \]

Interpretable   Uninterpretable
Other types of concord?

• $\square$-concord? (‘Universal Concord’)

• $\square$-concord? (‘Existential Concord’)

• For the rest of the talk: We’ll look into $\square$-concord.
If there was [□]-concord...

- Even indefinites that are pure existentials could lack quantificational force, which would then have to come from propositional [□].
How could you even tell?

• [□]-concord?

• Somebody gave something to somebody.
Task ahead

• Make a case for [□]-concord.
Indefinites to look at


- **No quantificational variability**: They are always existentials.

- They are a brand of **free choice indefinites**.
The argument

• You seem to need propositional $[\square]$, hence $[\square]$-concord, to derive the free choice effect for free choice existentials.
Irgendein: Speaker Ignorance

Irgendjemand hat geklopft.
Irgend-one has knocked

Somebody knocked - the speaker doesn’t know who it was.
Irgendein: Speaker ignorance or agent indifference

Sie hat an irgend-einen Tür geklopft.
She has at irgend-one door knocked

(a) Wide-scope: She knocked on some door - the speaker doesn’t know which one it was.

(b) Narrow-scope: She knocked on some door - she didn’t care which one it was.
Mary musste **irgendeinen** Arzt heiraten. Mary had to **irgend-one** doctor marry.

(a) **Wide-scope**: There was some doctor Mary had to marry - the speaker doesn’t know who it was.

(b) **Narrow-scope**: Mary had to marry some doctor or other - any doctor was a permitted option.
Permitted Marriage Options

Mary musste irgend-einen Arzt heiraten.
Mary had to irgend-one doctor marry.

Scenario
Suppose Mary had to marry one of two doctors, Dr. Heintz or Dr. Dietz, and those were the only permitted options for her.

Judgment: Sentence can’t describe situations of this kind.
Epistemic Possibilities

Mary musste *irgendeinen* Arzt heiraten.
Mary had to *irgend-one* doctor marry.

Scenario
Suppose there was a particular doctor Mary had to marry. The speaker knows that it was either Dr. Heintz or Dr. Dietz.

Judgment: Sentence feels slightly infelicitous. See Alonso-Ovalle & Menendez-Benito 2003 for more discussion of epistemic free choice effects.
Must \[\square\]

\[
\begin{array}{l}
\text{Mary marry Dr. Arzt} \\
\text{Mary marry Dr. Betz} \\
\text{Mary marry Dr. Curtz} \\
\text{Mary marry Dr. Dietz} \\
\text{Etc.}
\end{array}
\]

(a) For every accessible world, there is an alternative that is true in it.

(b) **Free choice effect**: For every alternative, there is an accessible world in which it is true.
What’s the **Free Choice Effect**?

- For every propositional alternative there is an accessible world in which it is true.

- You must consider the widest possible set of alternatives.
What the semantics for modals delivers

• For every accessible world there is a propositional alternative that is true in it.

• Even if there is a requirement to consider the widest possible set of propositional alternatives, this requirement alone doesn’t seem to help with the Free Choice Effect.
The Free Choice Effect is a conversational implicature.

The implicature can be derived by assuming that free choice items involve domain widening, and domain widening has to be for a reason (Kadmon and Landman 1993).

Possible reasons for domain widening: Strengthening a claim, avoiding a false claim, avoiding a false exhaustivity inference.
The crucial cases for us here

• Multiple occurrences of *irgendein* in the scope of a modal
Multiple *irgendein’s* ....

• If we look at sentences with multiple *irgendein’s* in the scope of a modal, then.....

• we have to consider all possible combinations of individuals in the alternative sets introduced by each *irgendein*.
An example

Mary muss *irgendwem* *irgendwas* schenken.
Mary must irgend-one-Dat irgend-thing-Acc give

‘Mary must give something or other to somebody or other as a gift.’
An example

Mary muss irgendeinem irgendeinem was schenken.
Mary must irgend-one-Dat irgend-thing-Acc give

Set of alternatives A
Set of alternatives B

Every member of A \[\sqcup\] B determines a deontic or epistemic option that is relevant for the free choice effect.
Sentential $[\square]$ 

- We seem to need a compositional mechanism combining alternatives introduced by different occurrences of *irgendein*.

- A propositional existential quantifier like $[\square]$ would do just that.
Conclusion

• There is evidence that an operator like propositional $\square$ is used even by indefinites that do not have variable quantificational force.

• There is evidence for $\square$-concord, then.
But wait

• The Free choice effect with *irgendein* is just a conversational implicature......
Cancellation in downward entailing environments

• Niemand konnte \textit{irgendwas} sagen.
  Nobody could \textit{irgend-what} say

• Nobody could say anything.

• \textit{Not:} Nobody could say just anything.
Importing the implicature into the semantics

Du musst einfach nur irgendwem irgendwas schenken.
You must simply only irgend-one-Dat irgend-thing-Acc give

‘You must simply give something or other to somebody or other as a gift.’
Du kannst nicht
You can not

einfach nur irgendwem irgendwas schenken.
simply only irgend-one-Dat irgend-thing-Acc give

‘You can’t just give any-old-thing to any-old-body as a gift.’
• There is existential concord, then.

• That *irgendein* looks like an existential does not mean that it is itself an existential quantifier.
Moving towards Salish…. 

• What could indefinite determiners denote if they are not quantificational?

• ……Matthewson 2002…. 

Denotations for indefinite determiners

• Indefinite determiners might denote contextually supplied (possibly parametrized) choice functions selecting a non-empty subset from any set in their domain.

• $[[\text{some dog}]]_{c,w,g} = f_c ([[\text{dog }]]_{c,w,g}) = f_c \{x : x \text{ is a dog in } w\}$
Domain shrinking

- \[ [[\text{some dog}]]^{c,w,g} = f_c \{ x : x \text{ is a dog in } w \} \]

- Contextual domain restrictions are accounted for in this way.

- Wide-scope indefinites are special cases: The choice function picks a singleton set.
Domain widening

- Widening

\[
[[\text{irgendein Hund } ]]^{c,w,g} = [[\text{dog } ]]^{c,w,g} = \{x: x \text{ is a dog in } w\}
\]

- Intensional widening

\[
[[\text{any dog } ]]^{c,w,g} = \{x: \Box w' x \Box [[\text{dog } ]]^{c,w',g}\} = \{x: x \text{ is a possible dog}\}
\]
Matthewson 2001

• The creation of a generalized quantifier proceeds in two steps. In St’át’imcets QPs must have the form \([Q \left[ \text{Det NP} \right]\), where Det denotes a choice function.

\[
\begin{align*}
\left[ Q \left[ D_P \text{Det NP} \right]\right] \\
\text{Denotes a choice function}
\end{align*}
\]
Current perspective on indefinite determiners

a. Generalized Quantifiers
\[ [_{QP}Q \quad [_{DP}Det \quad NP \ ] \ ] \]

b. Propositional Quantifiers
\[ [_{FP}Q \ldots [_{VP}V \quad [_{DP}Det \quad NP \ ] \ ] \ ] \]
What about definites?

- Heim 1982 has proposed a unified analysis of definites and indefinites.
Possible ingredients for a typology

• Determiners shrink or widen domains. They never quantify.

• Determiners may carry uninterpretable features \( [\square], [\Box], [\square], [Q] \) that have to enter syntactic agreement relations with matching features carried by quantifiers. This creates a concord phenomenon.

• Quantifiers quantify over sets of alternatives.
Predicted semantic properties of (in)definite DPs

• Related to determiner denotations: definite, indefinite, singleton, free choice effects, semantic effects of domain widening.
Predicted syntactic properties of (in)definite DPs

• Related to uninterpretable $[\square], [\square], [\square], [Q]$ features
Concord, fixed versus variable quantificational force, syntactic intervention effects.
What about *any*...?

• Suppose there was just one *any*.

• Then *any* wouldn’t have any quantificational force of its own.

• It wouldn't have any of the features $\square$, $\square$, $\square$, $\square$, $\square$, $\square$, and the alternatives it creates would be quantified by the closest quantifier they bump into.
• The limited distribution of *any* could not be explained by syntactic constraints related to agreement, binding, etc.

• We would expect semantic properties of *any* (possibly connected to intensional domain widening) to be responsible for its distribution.
No interrogative interpretation?

- Why couldn’t *any* bump into [Q] and be interpreted as an interrogative?

- Lacking any other uninterpretable features, we expect *any* to move no further than its case features could take it. But then it should be caught by one of the other propositional quantifiers before getting anywhere close to [Q], which is sitting in the complementizer position.
The End