Interface interactions – Aspect and case*

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• Interaction of interfaces (components outside of syntax)
  Components on the PF branch can be sensitive to LF information
  (semantic information that is compositionally determined after Spell-out,
  outside of syntax, the computational component)

• The interaction may be unidirectional; it is possible that LF is not sensitive
  to PF information

• Case study
  – Structural case alternation in Finnish
  – Partitive ~ non-partitive (nominative / accusative)
  – Easily explained by permitting interface interactions

(1) Hän ajoi autoa
   he    drove car-part
   ‘He drove the car’

(2) Hän ajoi auton talliin
   he    drove car-acc garage-to
   ‘He drove the car to the garage’

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• Case study in the interaction of interfaces
  – Case alternation affects structurally case marked constituents
  – Case alternation affects the spell-out of the underspecified structural case
  – The spell-out of structural case is sensitive to semantic properties
  – Structural case in a divisible phase is partitive; otherwise it’s spelled out as non-partitive

1 Phases and interactions

• Based on a Minimalist model with cyclic Spell-out (Chomsky 2000, 2001)

1.1 Phases

• CP, vP
  (Legate 2003)

• DP

• Determining phasehood
  – PF independence
    (movement, phonological independence)
  – Syntactic properties
    (extraction must proceed through the edge of the phase; parasitic gap licensing)
  – LF independence
    (argument saturation, type t, quantifier reconstruction sites)
    [type and reconstruction site restriction would allow constituents of type t to be phases]

• DP is a PF phase, but arguments for syntactic or LF phasehood are lacking or are inconclusive
  Finnish data provide argument for LF phasehood of DPs
1.2 Other ingredients

- Spell-out
  - Spell-out of each phase takes place upon the completion of the phase (Fox and Pesetsky 2005)
  - Ship phases to interfaces and interpret them following completion and Spell-out
  - Spell-out at the LF and PF interfaces is simultaneous (contrary to Felser 2004 and Marušič 2005)
  - Determine interface representation of phases

- Late insertion
  - Late insertion of phonological material (Halle and Marantz 1993)
  - Morphology the place of late insertion, is located on the PF branch
  - Late insertion supplies phonological features
  - Late insertion is cyclic (like Spell-out); happens after the completion, spell-out and LF interpretation of a phase

1.3 Proposal

- Interface interactions
  - Late insertion can be sensitive to semantic information / properties of that phase
  - Interaction between interfaces: PF / morphology can be sensitive to semantic information (determined compositionally at the interface)
  - Non-simultaneous Spell-out is not sufficient, since LF information is accessible on the PF branch
• Necessity of interface interaction
  – Semantic information is not mediated by syntax
  – Calculating compositional semantic values within syntax as well as at LF would be redundant

2 Case alternation in Finnish

• Alternation between partitive and non-partitive structural case (nominative / accusative)


2.1 Relevant semantic properties

• Morphological case can be determined by
  – DP properties
  – Properties of the (verbal) predicate
2.1.1 DP properties

- Properties of the case-marked constituent
- The semantic properties of all structurally case marked constituents correlates with their case marking

(3) Objects
a. Ostan jäätelöä
   buy-1sg ice.cream-part
   ‘I’ll buy some ice cream’
b. Ostan jäätelön
   buy-1sg ice.cream-acc
   ‘I’ll buy the ice cream’

(4) Adjunct (temporal and spatial measure phrases, multiplicatives)
  a. Tämä patsas on seisonut tässä vuosisatoja
     this-nom statue-nom has stood here years-hundred-part
     ‘This statue has been standing here for centuries’
  b. Tämä patsas on seisonut tässä [viisikymmentä vuotta]
     this-nom statue-nom has stood here five.hundred-acc year-part
     ‘This statue has been standing here for five hundred years’

(5) Preverbal subjects
  a. Olutta on jääkaapissa
     beer-part is fridge-iness
     ‘Some beer is in the fridge’
b. Olut on jääkaapissa
     beer-nom is fridge-iness
     ‘The beer is in the fridge’
(6) Postverbal subjects¹
a. Keittiössä on lapsia
   kitchen-in is children-part
   ‘There are children in the kitchen’
b. Keittiössä on joku
   kitchen-in is someone-nom
   ‘There is someone in the kitchen’

• Adjuncts (temporal (‘for’-adverbs) and spatial measure phrases as well as
  multiplicatives) are structurally case marked
  – These adjunct types can appear with structural case marking in a num-
    ber of typologically diverse languages (Finnish, Korean, Slavic, Germanic)
  – The adjuncts show partitive ∼ non-partitive alternation in Finnish in
    conditions comparable to subjects
  – In Finnish, the adjuncts show an alternation between morphologically
    nominative and genitive non-partitive case marking, just as objects do
    (with genitive a dependent case)
  – In Korean, the adjuncts and objects show the same alternation between
    accusative and nominative case marking (Maling 1993)

2.1.2 Predicate properties
• Properties of the predicate affect only the object, but not adjuncts or subjects

(7) Hän ajoa autoa tunnin
    he-nom drove car-part hour-acc
    ‘He drove the car for an hour’

(8) Hän ajoi auton talliin [kahdessa minuutoissa]
    he drove car-acc garage-to two-in minute-in
    ‘He drove the car to the garage in two minutes’

¹Postverbal subjects involve locative inversion
2.2 Divisibility

• Relevant notion: divisibility

• Divisibility\textsubscript{1}
  A predicate P is divisible iff whenever P(x) for an argument x, then for all y \subseteq x, P(y)
  (Bennett and Partee 1972, Dowty 1979, Link 1998, a.o.)

• Divisibility\textsubscript{2}
  A predicate P is divisible iff whenever P(x) for an argument x, then for all y \subset x, \exists z \ [ y \subseteq z \subset x \& P(z)]
  (all parts of an argument x are parts of a proper part of x that’s a P-argument)
  (based on Hinrichs 1985)

• Divisibility can only hold of predicates

• Possibly divisible phases:
  – vP (predicate of times): predicate divisibility
  – DP (predicate of individuals): DP divisibility
    (excludes DPs of type <et,t> and e)
  – Not relevant for divisibility: CP (and arguably TP, NP phases)
2.3 Case alternation and an account

- The divisibility of DPs and vPs yields an asymmetric distribution of partitive case

<table>
<thead>
<tr>
<th></th>
<th>Object</th>
<th>Preverbal subject</th>
<th>Postverbal subject</th>
<th>Adjunct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divisible DP</td>
<td>partitive</td>
<td>partitive</td>
<td>partitive</td>
<td>partitive</td>
</tr>
<tr>
<td>Divisible vP</td>
<td>partitive</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

- Asymmetrical licensing of partitive case

- A (structural) case feature is Spelled out as partitive if it is realized or licensed within a minimal divisible phase

- vP-partitive
  - Objects are merged within vP and case is licensed by v

- Not vP-partitive
  - The case of subjects is licensed by T, outside of vP
  - Adjuncts (temporal and spatial measures and multiplicatives) appear outside of the (minimal) vP, and so are not licensed within vP

2.4 Telicity and vP divisibility

- vP divisibility (licensing partitive case on objects) is different from telicity (contrary to Kratzer 2004)

- Telicity, diagnosed by in and for-adverbs, behaves in Finnish as in other languages – goals and resultatives yield a telic event predicate, just as spatial measures do

- These adjuncts show a diverging behavior with respect to partitive case licensing (DP-divisibility): goals and resultatives yield a non-divisible vP, but structurally case marked adjuncts fail to affect divisibility

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2Following Lechner 2003, I assume that structurally case marked adjuncts are merged within vP, c-commanded by vP arguments. The adjuncts are extracted from the vP and move to a position c-commanding the arguments, yielding Pesetsky’s paradox. Extrapolation takes place before Spell-out, so LF and morphology have access to the derived position of the adjuncts
• Telicity and vP-divisibility
  
  – (9): atelic, vP is divisible
  – (10): telic, vP is non-divisible
  – (11): telic, vP is divisible

(9)  Rääätäli lyhensi *hametta* (tunnin)
tailor shortened skirt-part hour-acc

  ‘The tailor shortened the skirt (for an hour)’

(10) Rääätäli lyhensi *hameen metrin pituiseksi* (# tunnin)
tailor shortened skirt-acc meter-gen long-trans. hour-acc

  ‘The tailor shortened the skirt to a meter’s length (# for an hour)’

(11) Rääätäli lyhensi *hametta sentin verran* (# tunnin)
tailor shortened skirt-part cm-gen by . hour-acc

  ‘The tailor shortened the skirt by a centimeter (# for an hour)’

• Behavior of structurally case marked adjuncts

  – Do not affect vP-divisibility
  – Case marking is not affected by vP-divisibility

• These adjuncts are not part of the domain where vP-divisibility is determined

• The semantic (LF) properties of DPs are relevant for case realization

• If compositional semantic properties are determined in the semantic component, then the properties of DPs are determined at LF

• The DP phase is an LF and a PF phase at the same time
3 Interface interaction and predictions

• Late insertion can be sensitive to semantic information elsewhere, yielding morphological alternation

• The relevant semantic information is phase-bound and local to the alternating element
  (the phase whose properties determine alternation is the minimal phase with the relevant property that contains the alternating element)

• The interaction of the interpretive components may be unidirectional
  (PF components can interpret LF information, but not the other way around)

3.1 Other examples of interface interaction

• Distribution of constituents constrained by semantic properties
  – Polarity items
  – Indicative – subjunctive mood
  – Other, non-alternating elements whose distribution is constrained by (compositional) semantic properties

• Polarity items
  – Szabolcsi 2004
    * Account of negative quantifiers, NPIs and PPIs
    * Unique lexical item, containing two instances of negation ($\neg\neg\exists$), the form of the lexical item varies according to the place where negations are realized
    * Possibly extended to free choice items as well
  – Not compositional, could be mediated by syntax (if licensing takes place within the computational component)
  – The distribution can be captured by permitting a direct interaction between semantic properties (LF) and morphology
3.2 A non-example?

- No evidence for bidirectional interaction
  morphology / PF does not interpret LF information

- Proposals for eliminating a [focus] feature (e.g. Reinhart 2006)
  - Focus determined by nuclear stress position (a PF property)
  - Specific interpretation of focus, i.e. focus projection (mismatch between nuclear stress and (semantic) focus interpretation) is determined by context, discourse grammar

- Manipulating focus requires some notion of focus independent of nuclear stress at PF

- Semantic focus must be marked by a feature or diacritic

- Features, in general, are not introduced directly into the semantic component

- Focus feature (or some other notation) is necessary to be interpreted in semantics
  Redundancy is not sufficient to argue against a [focus] feature, which is present in syntax and interpreted at both PF and LF

4 A uniform account of partitive case in Finnish?

- Other partitive environments in Finnish
  - Negation
    (enforces partitive case on objects, adjuncts and postverbal subjects)
  - Postpositions with partitive NP
    (e.g. *ilman* ‘without’)
  - Numerals/ quantifiers with partitive NP
    (Partitive NP with nominative / accusative numerals higher than one; *paljon* ‘a lot of’, but not *harvat* ‘few’ or *monet* ‘many’)
• Divisibility does not correlate with all occurrences of partitive case 
  (harvat ‘few’ or paljon ‘a lot of’)

• Divisibility characterizes some environments where partitive case appears
  – Complement NP of ilman ‘without’
  – The NP complement of numerals higher than one is divisible

• Partitive case is the default case in divisible environments
  (Partitive is the default spell-out of structural case; must be distinguished
  from checked case features, as with quantifiers and NP complements)

• Phases, divisibility and case marking
  – TP, even if a phase, is not relevant for case alternation in Finnish, since
    it cannot be divisible
  – If NP is also a phase (Svenonius 2004), then divisibility – as relevant
    for the Spell-out of case – may be determined within phases universally
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