Event pluralities - Day 1
Introduction

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**Outline of the course**

- **Day 1**: Introduction. Sources of event plurality. Types of event pluralities. Individuation of events: event-external and event-internal plurality. Event pluralities and plural participants.

- **Day 2**: Distributive configurations. Distributive key, distributed share. Distribution, cumulation, ratio.


- **Day 5**: Distributive numerals and dependent indefinites. Marking the distributive share. Patterns of d-indefinite licensing.
Outline - Day 1

1. Sources of event plurality
   - Types of event plurality markers
   - Induced plurality
     - Degree + count
     - Grammatical aspect

2. Types of event plurality
   - Asserted event plurality vs. mixed event plurality
   - Modalized event plurality
   - Types of event plurality and cardinality

3. What is a plural event?
   - Event similarity across plural events
   - Event individuation: event-internal and event-external plurality

4. Distribution vs. scope
Sources of event plurality

- Event plurality can arise from different linguistic markers.

1. Plural arguments + distributive predication
   John rang *several friends* / wrote *letters*.

2. Vpl markers (Day 3)
   a. The rabbit *hobbled* across the yard.
   b. John *re-read* the book.

3. Adverbs and adverbial phrases (Day 4)
   a. John came *twice/ often/ again*.
   b. John comes *twice a week/ when it rains*.
   c. John carried the suitcases *in threes/three at a time*.

4. Adnominal markers (Day 5)
   a. The children brought a book *each*. 
Sources of event plurality

Leave aside

(5) Quantifiers
Every child ate a cookie.

(6) Reciprocals
The children rang each other.
Event plurality vs. nominal plurality

- **Event plurality** =
  An interpretation involving a *multiplicity* of events

- **Inflectional nominal plurality** too narrow as an analogue.

(7) \( \text{dodos}(X) = \text{true} \)
    for \( X = \{ \text{dodo}_1, \text{dodo}_2 \} \)

- Many event plurality markers
  - do not apply if the cardinality of the plurality is 2
  - do not allow counting of subevents with cardinality markers like *three times*

(8) a. John scattered *two petals.*
    b. He kept yawning three times.
**Event plurality vs. nominal plurality**

- **Event plurality =**
  An interpretation involving a multiplicity of events
- **Parallels to plurality in a wider sense**

(9)  
  a. dodos  
  b. *many / a lot of* dodos  
  c. *a flock/ a family/ a squad/ a multitude* of dodos (group N)  
  d. *more dodos/ another* dodo (additive)  
  e. *different* dodos (pl + diversity)  
  f. a dodo *at a time / a dodo a day* (plural by cumulation over iteration)
Polysemy of event plural markers

- Event plurality markers are heterogenous
  - Different polysemies
  - Different syntactic elements
- Many event plurality markers are polysemous beyond plurality
- Cusic (1981, 74) (following Dressler 1968) includes the following plural meanings among others:

  (10) repetitiveness, [...] habitual agency, distributed quality, [...] intensity, plurality of sites of action, duration, continuity, conation, distribution [...]

Cabredo Hofherr/Tovena (CNRS/Paris 7)
Sources of event plurality - induced plurality

- One reason that event plurality is different from count nominal plurals: event plurality need not be the result of a plural marker, understood as a marker imposing a cardinality requirement $|\text{card}(X)| > n$, for some $n$

- Event plurality can be induced by other expressions
  - Degree expression + count complement
  - Grammatical aspect
Induced plurality 1: degree + count

The interpretation of degree expressions depends on complement.

(11) a. a lot of rice  → quantity + mass  
     → quantity of substance

b. a lot of books → quantity + count  
     → multiple individuals
Induced plurality 1: degree + count

- Induced plurality in the event domain
  - Degree adverbs: *a lot*/ *beaucoup*
  - Mass-count distinction in the event domain
    (Mourelatos 1978; Bach 1986)

(12)  
  a. Process $\approx$ mass (cumulative): *run, stand,*
  b. Events $\approx$ count (bounded): *die, break,*
Induced plurality 1: degree + count

- Interaction between events and arguments Verkuyl (1972)
- Predicates with incremental themes Dowty (1991); Krifka (1992); Tenny (1994)
  - Non-quantized incremental themes: process
  - Quantized incremental themes: event
- Q is quantized iff $\forall x, y: Q(x) \& Q(y) \not\rightarrow x < y$
- if Q applies to x and y
  - then x cannot be a proper subpart of y

\[(13)\]

a. Process: *eat soup, apples*
b. Event: *eat the soup, the apples, an apple*
Induced plurality 1: degree + count

- Quantized incremental themes help to identify events.
- This is not straightforward
  - Problems with the definition of quantization
  - In particular for other determiners *some, many* (discussion in Rothstein (2004, 149ff))
  - Predicates need not have an incremental theme

(14)  *push the cart / watch the birds*
Induced plurality 1: degree + count

- Degree expressions give rise to polysemy: Doetjes (2007)
- Compare the polysemsies in (15) with (10) above.

(15) It rained a lot.
   a. It rained many times. (iterative)  \(\rightarrow\) bounded events
   b. It rained a long time. (durative)  \(\rightarrow\) mass-like process
   c. It rained heavily. (intensive)
Induced plurality 2: grammatical aspect

Aspect marking & event plurality: Bonomi (1997)

- Imperfective: iteration / habitual
- Perfective: single event

(16) a. Il a vu Marie à l’école. (Fr)
   J. has seen M. in the.school. (perfective past)
   → perfective past = single event

b. Il voyait Marie à l’école. (Fr)
   J. saw.ipfv.past M. in the.school. (imperfective past)
   "John used to see Marie in school."
   → imperfective past = iterated event
Induced plurality: Conclusions

- Degree expressions
  - Need to control eventuality type in examples (lexical aspect /Aktionsart)
  - Need to control type of arguments (incremental themes)
- Grammatical aspect
  - Need to control grammatical aspect in examples
  - Distinguish verbal plural markers from imperfective aspect
  - Distinguish verbal plural markers from progressive aspect
Types of event plurality

Need to distinguish (Tovena and Donazzan, 2008)

- **asserted** event plurality
- **mixed** event plurality

(17) a. John read the book **twice**. (asserted plurality)
    b. John read the book **again**. (mixed plurality)
 asserted event plurality

(18)  John read the book twice.
   \[ \exists E: |E| \geq 2 \land \forall e \in E: \text{read}(e) \land \text{Th}(e) = \text{the book} \land \text{Ag}(e) = \text{John} \]

mixed event plurality: asserted + presupposed events

(19)  John read the book again.
   \[ \exists e: \text{read}(e) \land \text{Th}(e) = \text{the book} \land \text{Ag}(e) = \text{John} \land \exists e': \text{read}(e') \land \text{Th}(e') = \text{the book} \land \text{Ag}(e') = \text{John} \land \tau(e') < \tau(e) \]
Types of event plurality: mixed plurality

- These mixed event plurality markers do not impose a plural cardinality requirement.
- For some mixed event plurality markers cardinality adverbs count asserted events.

\[ (20) \text{ John re-read the book twice.} \]
\[
\exists \ E: |E| \geq 2 \ & \ \forall \ e \in E:
\text{[read}(e) \ & \ Th(e) = \text{the book} \ & \ Ag(e) = \text{John} \ & \ [\exists \ e': \text{read}(e') \ & \ Th(e') = \text{the book} \ & \ Ag(e') = \text{John} \ & \ \tau(e') < \tau(e)]]
\]

- These mixed event plurality markers are compatible with \textit{once}.

\[ (21) \text{ John re-read the book once.} \]
Types of event plurality: Modalized event pluralities

- Modalized event pluralities include potential and counterfactual events

(22)  a. John reads books during the holidays. (descriptive generic)
     b. John goes to school at 8am. (prescriptive generic)
     c. John handles the mail from Antarctica. (Carlson)
        (dispositional generic)

- Cardinality does not apply to modalized event pluralities
Types of event plurality

- **Asserted plurality**
  - has a cardinality
  - may be vague cardinality
    She came *many times/twice*.

- **Mixed plurality**
  - can be compatible with expressions of event cardinality 1
    He re-read the book *once*.

- **Modalized plurality**
  - does not have a cardinality
    She goes to school at 8 (*#three times*).  
    (# under habitual present tense)
What is a plural event?

- Event individuation of **singular** events is problematic
- Many events have complex internal phases

(23)  a. organise a party
       b. prepare a cake
       c. travel to India
What is a plural event?

- Event plurality: multiplicity of sufficiently similar events

- Criteria for event similarity
  How similar do events in the event plurality have to be?

- Criteria for event individuation
  How different do events in the event plurality have to be (to count as different events)?
    - How can different subevents be identified?
    - Distribution possibilities over participants, locations, times
Plural events: event similarity

Criteria for event similarity

- Events have to count as being "of the same type"
- The similarity condition is a linguistic criterion
- Cannot infer plurality from possible instantiations in the world

(24) a. John prepared dinner. → not a plural event
b. John prepared several dishes. → plural event
What is a plural event?  Event similarity across plural events

Plural events: event similarity

- Criteria for event similarity differ depending on the markers

- Repetitive **again**: same subject

  (25) John came **again**.
  \[ \exists e: \text{come}(e) \& \text{Ag}(e)=\text{John} \& \]
  \[ [\exists e': \text{come}(e') \& \text{Ag}(e')=\text{John} \& t(e') < t(e)] \]

- Repetitive **also**: different subject possible

  (26) John **also** came.
  \[ \exists e: \text{come}(e) \& \text{Ag}(e)=\text{John} \& \]
  \[ [\exists e': \text{come}(e') \& \text{Ag}(e') \neq \text{John}] \]
Individuating singular events: event differentiation

- Event plurality: more than one event of the same type
- Criteria for event individuation
  - How different are events in the event plurality **required** to be?
Plural events: event individuation

- Cusic’s proposal: Distinguish
  - phases of an event
  - events
  - occasions

- Phases: repetitive parts of an event but not individualised
  *flutter, scatter, wiggle*

- Events: bounded entities

- Occasions: events occur on an occasion
  different occasions are temporally (or possibly spatially) distinct
Event-internal vs. event-external plurality

- Multiple phases of one event on one occasion
  \[\rightarrow \text{event-internal}\] plurality

(27) The mouse nibbled the cheese.
  1 event, multiple phases
  (event-internal plurality)

- Multiple events on different occasions
  \[\rightarrow \text{event-external}\] plurality

(28) His grandmother rings every Thursday.
  1 event per occasion, multiple occasions
  (event-external plurality)
Plural events: 3 levels of event plurality

- Have an **intermediate** case.
- Three levels of event-plurality (Cusic, 1981, 67)
  - multiple phases (on one occasion) → **event-internal** plurality
  - multiple events on a single occasion → **event-external** plurality
  - multiple events on different occasions → **event-external** plurality
Plural events: 3 levels of event plurality

- **event-internal** plurality
  
  (29) The mouse nibbled the cheese.  
  multiple phases, 1 event, 1 occasion

- **event-external occasion-internal** plurality
  
  (30) The mouse bit the cheese again and again.  
  multiple events, 1 occasion

- **event-external occasion-external** plurality
  
  (31) His grandmother rings every Thursday.  
  multiple events, 1 event per occasion, multiple occasions
Plural events: repetitive action vs. repeated action

- Event plurality markers do not distinguish the two types of event-external plurality (Cusic, 1981, 79)
- Two types of event plurality markers
  - **repetitive** action
  - **repeated** action

<table>
<thead>
<tr>
<th>Event plurality marker</th>
<th>Event plurality types</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>repetitive</strong> action</td>
<td>event-internal</td>
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<tr>
<td><strong>repeated</strong> action</td>
<td>event-external, occasion-internal</td>
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<tr>
<td></td>
<td>event-external, occasion-external</td>
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</tbody>
</table>
Plural events: repetitive action

- **repetitive** action
  - units of action are conceived of as confined to a single occasion
  - units of action are conceived of as confined to a single event on that occasion
  - English: *flutter, wiggle, tickle* Cusic (1981, 78-9)
Plural events: repeated action

- **repeated** action:
  - units of action are **potentially distributable** over multiple occasions
  - units of action are **not necessarily distributed** over multiple occasions. (Cusic, 1981, 78-9)

- Two types of repeated action
  - event-external + occasion-internal plurality
  - event-external + occasion-external plurality
Plural events: event individuation


- **Repetitive** action: is mass-like (atoms not identified)

- **Repeated** action: is count-like, an external plural of bounded entities

- Repetitive action is not a event plural for Cusic.
  - **Repetitive** action is a complex single event
  - **Repeated** action involves multiple events
What is a plural event?

Event individuation: event-internal and event-external plurality

Event-internal vs. event-external: Lasersohn (1995)

Lasersohn (1995) formalizes the distinction between event-internal and event-external.

Semantic contribution of $\text{PA}$ (= pluractional marker) (first version) (Lasersohn, 1995, 256)

(32) $\text{V-PA}(X) \iff \forall e \in X : \text{P}(e) \land \text{card}(X) \geq n$
Event-internal vs. event-external: Lasersohn (1995)

Lasersohn (1995, 257): difference between repeated action and repetitive action at the level of the iterated predicate $P$.

- **repetitive** $P \neq V$: $P$ is fixed lexically
- **repeated** $P = V$

\[(33) \quad V-\text{PA}(X) \iff [\forall e \in X : P(e)] \& \text{card}(X) \geq n\]
Event-internal vs. event-external: Lasersohn (1995)

- **repetitive** action: $P \neq V$ (Lasersohn, 1995, 244)
- multiple events of a different type $P$ (lexically associated with $V$)
- events of type $P$ sum up to form a single token of the event-type corresponding to the verb $V$

(34) The mouse nibbled the cheese.
   multiple action = multiple small bites
   $V =$ nibble
   $P =$ small bites (lexically associated with $V$)
What is a plural event?

Event individuation: event-internal and event-external plurality

Event-internal vs. event-external: Lasersohn (1995)

Repeated action: $P = V$ (Lasersohn, 1995, 244)

- multiple events of the type denoted by the verb.

(35) John hit the ball over and over.
    $V = \text{hit}$
    multiple action = multiple hits
Lasersohn’s view of event-internal vs. event-external
- repetitive action: $P \neq V$: multiple $P$-events
- repeated action: $P = V$: multiple $V$-events

Event-internal and event-external pluralities are of the same type

Cusic’s view of event-internal vs. event-external
- repetitive action: multiple phases, one event
- repeated action: multiple events

- Lasersohn (1995) includes event identification criteria for events in the plurality.
- Semantic contribution of PA (= pluractional marker) (2nd version)

\[ V-PA(X) \iff \forall e, e' \in X \ [P(e) \& \text{card}(X) \geq n \& \neg [K(e) \circ K(e')] \& \exists t \ [\text{between}(t, \tau(e), \tau(e')) \& \neg \exists e'' \ [P(e'') \& t = \tau(e'')]] \]

with \( K = \) temporal trace or spatial trace or a thematic role
What is a plural event?

Event individuation: event-internal and event-external plurality


A collection of events X is a plurality of events associated with V+pluraotional marker if

- all the events in X fulfill a certain predicate (V or P = lexically associated with V)
- the events in X do not overlap in a dimension K (temporal or spatial or participants)
- the events in X are separated by a temporal gap that is not an event of the plurality
- there is a certain number (more than n) of these events
Event individuation: Temporal gaps

- Many analyses of event plural markers include a condition imposing **temporal gaps**
- This gap condition seems to be necessary to enforce counting for **homogeneous events**

(37)  
(a. John slept from 8h-9h and John slept from 9h-10h.
    b. John slept from 8h-10h.
What is a plural event?

Event individuation: event-internal and event-external plurality

Event individuation: Temporal gaps

Not clear if temporal gaps are necessary for events with other individuation criteria, e.g. plural incremental themes

(38) a. John read chapters 1-3 of this book.
    b. John read chapter 1, chapter 2 and chapter 3 of this book.
Event individuation: Temporal gaps

- The analysis of intermediate cases (multiple events?/ multiple phases?, one occasion) often remains unclear.

(39)  
  a. John scattered the confetti everywhere.
  b. John scattered the confetti in the kitchen and in the living-room.

(40)  
  a. flutter
  b. flap wings twice (one occasion)
  c. flap wings when a predator approaches (many occasions)
What is a plural event?

Event individuation: event-internal and event-external plurality

Event-internal plurality: Lack of event individuation

Wood (2007, 76-87) discusses factors that favour an event-internal plurality reading, i.e. lack of event individuation

- Continuity in time
- Inherent multiplicity (digging, swimming, knocking)
- Semelfactive actionsart
- Common cause, goal, result
- No distribution over plural arguments
Event-internal vs. event-external plurality

- **Clear extremes**
  - **Plural phases, single event, single occasion, same arguments**
    She knocked at the door.
  - single occasion, distributed bare plural arguments
    They washed glasses.
  - single occasion, temporal sequence
    They washed one glass after the other.
  - single occasion, spatial distribution
    Here and there birds sang.
  - single occasion, distributed individuated arguments
    They washed three glasses.
  - **Plural events, plural occasions, distributed arguments**
    He eats an apple a day.

- Distribution across arguments, times, locations is a key ingredient of event individuation.
Question: What is the source of distribution across arguments, times, locations?
Quantificational plurality?

(41) Every child built a sandcastle. \(\rightarrow\) quantification imposes multiplication of singular indefinite
1 castle per child

Plural predication?

(42) The children built a sandcastle. \(\rightarrow\) plural predication allows multiplication of singular indefinite
1 castle per child possible, but collective interpretation preferred (Dotlačil, 2015)
Distribution vs. scope: multiplication of indefinites

- Look at frequentatives and habituals with **indefinite singular objects**
- With **telic** predicates (accomplishment or achievement) **indefinite singular objects**
  - **allow** multiplication with adverbial expressions like *often, after school*
  - **disallow** multiplication with habituals (and other verbal event plural markers)
Multiplication of indefinites allowed with adverbs (variable objects)

(43) a. John often eats an apple.
    b. John eats an apple after school.

Multiplication of indefinites disallowed with habituands (constant object) (Carlson 1977, Kleiber 1987, p.156,161, de Swart 1987)

(44) # John eats an apple.
Event plurality: distribution vs. scope

- *John eats an apple* is anomalous:
  - a habitual of a verb of consumption
  - a constant object

- Achievement/accomplishment with a singular object is ok if the object is constant (*no multiplication of the sg*).

(45) John takes a little boy to school.
Distribution vs. scope

Event plurality: distribution vs. scope

- Achievement/accomplishment with a bare plural object allow distribution
- Distribution of a plural over events: 1 object per event possible

(46)  
  a. # John eats an apple.  
  b. John eats apples.
Contrasts between indef sg/ bare plural as in (46) are analysed in terms of a scope contrast (Van Geenhoven, 2004, 136)

- the singular indefinite in (46a) seems to take wide scope with respect to the event plurality
- the bare plurals in (46b) seem to take narrow scope (adapted from Van Geenhoven 2004, 136)
Event plurality: distribution vs. scope

- Why do sg indefinites have to take wide scope?
- Why do sg indefinites not take wide scope with adverbs?
- Van Geenhoven’s solution: not a scope effect but a distribution effect.
  - Singular indefinite objects do not allow distribution
  - Bare plural objects allow distribution over event plurality
    (Van Geenhoven, 2004, 136)
Event plurality: distribution vs. scope

- Multiplication of indefinite singulars is related to quantificational force.
- Singular indefinite objects allow multiplication with quantificational adverbs.
- Singular indefinite objects disallow multiplication with non-quantificational adverbs.

(47) Multiplication of indefinite sg.
    a. John often eats an apple.
    b. Three times, John ate an apple.

(48) No multiplication of indefinite sg
    # John eats an apple a lot.
Many verbal event plurality markers (Laca, 2006)

- do not multiply indefinite singular arguments +
- allow distribution of bare plural arguments

(49) # Qaartartoq sivisuumik qaaqattaarpoq (WG)
    qaartartuq sisisuu-mik qaar-qattaar-puq
    bomb.ABS lengthy.INS explode-QATTAR-IND.[-tr].3SG
‘#A/the bomb exploded again and again for a long time.’ (West Greenlandic) (Van Geenhoven, 2004, ex 30)

(50) Bomba lilxira (Chechen)
bomb.SG explode.PRL.WP
# The bomb exploded again and again (one bomb produces several explosions). (Wood, 2007, 211, ex 17)
**distribution of bare plural**

(51) Qaartartut sivisuumik qaaqattaarput (West Greenlandic) qaartartu-t sivisuu-mik qaar-qattar-put bomb.ABS-PL lengthy.INS explode-QATTAR-IND.[-tr]3PL **Bombs** exploded again and again for a long time. (Van Geenhoven, 2004, ex 31)

(52) Bombanash **lilxira** (Chechen) bomb.PL explode.PRL.WP **The bombs** exploded. (Wood, 2007, 211, ex 17b/c)
Distribution and types of DPs

- Not all types of plural arguments allow distributive readings (Van Geenhoven, 2004, 2005)
- **Plural indefinite NPs** are not generally distributable

(53) John repairs *several bicycles/ some bicycles.*
(no distribution of the object over events ≠ John repairs bicycles
only John repairs the same bicycles over and over.)

  **Bare plurals** are good candidates for distributable plural arguments.
Distribution and types of DPs

- The type of DP available for distribution depends on the event plurality marker (Laca, 2006).
- Laca (2006) shows that the Spanish periphrasis *andar* + gerund
  - does not multiply sg indefinites
  - allows distribution over bare plurals
  - allows distribution over definite plurals
  - allows distribution over quantified DPs
Distribution and types of DPs

(54) El zorro **anduvo** matando
    the fox    walk.SP killing

a. ?? una gallina
    a    hen

b. **ok** gallinas
    hens

c. **ok** las gallinas.
    the hens

‘The fox has been killing a hen / hens / the hens.’ (Spanish)

(55) Juan **anda** llamando por teléfono a cada uno de sus amigos.
    Juan walk.PR calling by phone to each one of his friends

‘Juan is phoning every one of his friends.’ (Laca, 2006, ex.23a)
(does not require more than one phone-call per friend)
Summary 1

- Verbal plurality is the analogue of quantity in the nominal domain, not of inflectional count plurals in the nominal domain.
- Degree expressions and viewpoint-aspect induce event pluralities.
- Event pluralities can include different types of events: asserted, presupposed and modalized events.
Event individuation

- Event internal plurality corresponds to plurality of phases/subevents not individuated.
- Event external plurality corresponds to plurality of events: events can be individuated by one or more criteria.

Event pluralities and distribution of arguments

- Lack of multiplication of singular indefinites with event plurality markers is not a scope effect (not obligatory wide scope).
- Distribution of bare plural arguments over event pluralities is not necessarily a scope effect (not obligatory narrow scope).
- Distribution possibilities depend on the syntactic type of the distributed argument.
References I


References II


