Scope-related cumulativity asymmetries and cumulative composition

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Empirical problem: Cumulative readings of *every* DPs, distributive conjunction

Novel analysis: cumulation is built into composition rules

Independent motivation: Behavior of plural expressions in conjunctions

Comparison to existing analyses (time allowing)
1. Empirical problem: Cumulative readings of every DPs, distributive conjunction
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Empirical problem: Cumulative readings of *every* DPs, distributive conjunction

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Comparison to existing analyses (time allowing)
Today’s talk

1. Empirical problem: Cumulative readings of every DPs, distributive conjunction
2. Novel analysis: cumulation is built into composition rules
3. Independent motivation: Behavior of plural expressions in conjunctions
4. Comparison to existing analyses (time allowing)
1. Singular universals and distributive conjunctions

2. Independent motivation for cumulative composition

3. Analysis, part 1: Plural projection

4. Analysis, part 2: Cumulativity asymmetries

5. Comparison with existing theories
1. Singular universals and distributive conjunctions

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Cumulativity asymmetries: English singular universals

Distributivity wrt. lower plural expressions

(1) *Every girl in this town fed (the) two dogs.*

**Scenarios:** girls Ada and Bea, dogs Carl and Dean

‘*distributive*’ scenario: Ada fed Carl and Dean. Bea fed Carl and Dean. TRUE

‘*cumulative*’ scenario: Ada fed Carl. Bea fed Dean. FALSE

Cumulativity wrt. higher plural expressions

(2) *(The) two girls fed every dog in this town.*

**Scenarios:**

‘*distributive*’ scenario: Ada fed Carl and Dean. Bea fed Carl and Dean. TRUE

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Cumulativity asymmetries: English singular universals

Distributivity wrt. lower plural expressions

(1)  *Every girl in this town fed (the) two dogs.*

**Scenarios:** girls Ada and Bea, dogs Carl and Dean

‘distributive’ scenario: Ada fed Carl and Dean. Bea fed Carl and Dean. **TRUE**
‘cumulative’ scenario: Ada fed Carl. Bea fed Dean. **FALSE**

Cumulativity wrt. higher plural expressions

(2)  *(The) two girls fed every dog in this town.*

**Scenarios:**

‘distributive’ scenario: Ada fed Carl and Dean. Bea fed Carl and Dean. **TRUE**
‘cumulative’ scenario: Ada fed Carl. Bea fed Dean. **TRUE**

### Cumulativity wrt. higher plural expressions

(3) *Zum Glück haben die zwei Österreicherinnen sowohl die Abfahrt als auch den Slalom gewonnen!*

‘Fortunately, the two Austrians won both the downhill and the slalom.’

‘cumulative’ scenario: Ada won the downhill. Bea won the slalom. **TRUE**

### Distributivity wrt. lower plural expressions

(4) *Zum Glück haben sowohl die Ada als auch die Bea die zwei Rennen gewonnen!*

‘Fortunately, both Ada and Bea won the two races.’

‘cumulative’ scenario: Ada won the downhill. Bea won the slalom. **FALSE**
**Cumulativity asymmetries: German distributive conjunction**

**CONTEXT:** There are two skiing World Cup races this weekend. Ada and Bea are the only Austrian participants. Ada is competing in the downhill and Bea in the slalom.

### Cumulativity wrt. higher plural expressions

(3)  
\[ \text{Zum Glück haben die zwei Österreicherinnen sowohl die Abfahrt als auch den Slalom gewonnen!} \]

\text{Fortunately, the two Austrians won both the downhill and the slalom.}

\text{‘cumulative’ scenario: Ada won the downhill. Bea won the slalom.} \quad \text{TRUE}

### Distributivity wrt. lower plural expressions

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**Distributivity wrt. lower plural expressions**

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Interim summary: Asymmetrically distributive universals (ADUs)

1. always have a distributive reading wrt. semantically plural expressions in their scope
2. allow for cumulative readings if they occur in the scope of a semantically plural expression
3. Assumption here: asymmetry tied to scope (following Champollion (2010), further research needed)

ADUs cross-linguistically

- singular universals: English every DPs, German jed- DPs
- German distributive conjunction: sowohl A als auch B ‘A as well as B’
- possibly other distributive conjunctions: Hungarian A is és B is, Polish i A i B (preliminary data)

Next point: Why ADUs represent a problem for a theory of cumulativity.
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Cumulative relations between individuals

(5) *The two girls wanted to buy the two dogs.*

adapted from Beck and Sauerland (2000)

- Cumulative truth conditions:
  Each of the two girls wanted to buy at least one of the two dogs &
  for each of the two dogs, at least one of the two girls wanted to buy it
- ⇒ Relation $[\lambda x. \lambda y. y \text{ wanted to buy } x]$ applies cumulatively to the girls and the dogs
- Cumulative relation may be derived by LF-movement Beck and Sauerland (2000)

Next step

Problem for this simple view of cumulativity: Schein sentences
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Next step

Problem for this simple view of cumulativity: *Schein sentences*
Why Schein sentences are a problem (1/2)

Schein sentences: ADUs ‘sandwiched’ between two other plural expressions.

(6) Ada and Bea taught every dog two new tricks. adapted from Schein (1993)

scenario: There are two dogs, Carl and Dean.
Ada taught Carl trick 1 &
Ada taught Carl trick 2 &
Ada taught Dean trick 3 &
Bea taught Dean trick 2

1 it is not the case that for every dog each of the girls taught it two tricks
⇒ every dog cumulative wrt. Ada and Bea

2 every dog was taught two tricks, tricks can be different
⇒ every dog distributive wrt. two tricks
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Ada taught Carl trick 1 &  
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Why Schein sentences are a problem (2/2)

(6)  *Ada and Bea taught every dog two new tricks.*  

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**Scenario:**  
* A taught C trick 1, A taught C trick 2, A taught D trick 3, B taught D trick 2.

Why a cumulative relation between individuals isn’t enough

- Cumulative relation R1, which takes the arguments Ada+Bea and Carl+Dean:
  
  (7)  \[ R_1 = \lambda x.e.\lambda y.e.y \text{ taught } x \text{ two new tricks} \]

  No cumulation with two tricks \( \rightsquigarrow \) each girl taught two tricks to some dog.  
  predicted FALSE

- Cumulative relation R2, which takes the arguments Ada+Bea and two tricks:
  
  (8)  \[ R_2 = \lambda x.e.\lambda y.e.y \text{ taught } x \text{ to every dog} \]

  No cumulation with every dog \( \rightsquigarrow \) The two tricks must be the same for each dog.  
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Why Schein sentences are a problem (2/2)

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No cumulation with every dog \( \sim \) The two tricks must be the same for each dog.

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Our approach: Predicate pluralities

(9)  *Ada and Bea taught every dog two new tricks.*  
adapted from Schein (1993)

Existing approaches

- Cumulative relations between events and individuals
- Cumulative relations between individuals plus more complex LF
  Champollion (2010)

Our basic idea

- Cumulation between individuals and predicate pluralities
- *Ada+Bea* must be in a cumulative relation with one of the elements of this set:

(10) \{taught C T1 + taught C T2 + taught D T1 + taught D T2, \\
taught C T1 + taught C T2 + taught D T2 + taught D T3, \\
taught C T3 + taught C T2 + taught D T1 + taught D T2, \ldots\}

- We only consider those pluralities of predicates that assign two tricks to each dog.
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1. Singular universals and distributive conjunctions

2. Independent motivation for cumulative composition

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4. Analysis, part 2: Cumulativity asymmetries

5. Comparison with existing theories
Ada owns a dog, Carl. Bea owns another dog, Dean, and a cat, Eric. Now they went on a trip and guess what . . .

*The two girls* made Gene [[feed the two dogs] \( P \) and [brush Eric] \( Q \)] when all he wanted to do was take care of his hamster.

**Scenario:** A made G feed C, B made G feed D, B made G brush E.

**TRUE**

What happens in this scenario:

1. **Cumulativity between the two girls and P and Q:** No girl satisfies both P and Q.
2. **Cumulativity between the two girls and the two dogs:** No girl made Gene feed both of the dogs.
3. **We cannot derive a 3-place cumulative relation between the two girls, the two dogs and P and Q:** because P and Q contains the two dogs.
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What happens in this scenario

1. Cumulativity between the two girls and $P$ and $Q$: No girl satisfies both $P$ and $Q$.
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*The two girls made Gene [[feed the two dogs]_P and [brush Eric]_Q] when all he wanted to do was take care of his hamster.*

Schmitt (2017)

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Ada owns a dog, Carl. Bea owns another dog, Dean, and a cat, Eric. Now they went on a trip and guess what . . .

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<table>
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(12) \text{feed Carl} + \text{feed Dean} + \text{brush Eric}

‘Flattening’: two plural expressions ($P+Q$ and $\text{Carl+Dean}$) correspond to only one plurality in the semantics.
Flattening effect (2/2)

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Interim summary

- Traditional approach to cumulative truth-conditions: Binary relations between individuals apply cumulatively. Relations may be syntactically derived.
  - Schein sentences problematic for this approach
  - Our idea: use cumulation with pluralities of predicates.
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- We develop a system that derives flattening effects for conjunction
  cf. Schmitt (2017) for a related version
- This system naturally extends to cumulativity asymmetries and Schein sentences.
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1 Singular universals and distributive conjunctions

2 Independent motivation for cumulative composition

3 Analysis, part 1: Plural projection

4 Analysis, part 2: Cumulativity asymmetries

5 Comparison with existing theories
The part structure of lower pluralities ‘projects’ up to higher pluralities (cf. focus projection / Hamblin sets)

(13) *feed Carl and Dean*

\[
\text{feed}(\text{carl})_{et} + \text{feed}(\text{dean})_{et}
\]

\[
\text{feed}_{e.et} \quad \text{carl}_e + \text{dean}_e
\]

(14) *feed and brush Dean*

\[
\text{feed}(\text{dean})_{et} + \text{brush}(\text{dean})_{et}
\]

\[
\text{feed}_{e.et} + \text{brush}_{e.et} \quad \text{dean}_e
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Crucial step: Cumulativity encoded in projection mechanism: Compositional rule
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\[
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\]

(14) *feed and brush Dean*

\[
\text{feed}(\text{dean})_{\langle et \rangle} + \text{brush}(\text{dean})_{\langle et \rangle}
\]

\[
\text{feed}_{\langle e \langle et \rangle \rangle} + \text{brush}_{\langle e \langle et \rangle \rangle} + \text{dean}_e
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- Crucial step: Cumulativity encoded in projection mechanism: Compositional rule
For this rule to be generalizable – one more level of complexity: Plural sets

\[ \{ \text{feed(carl)} + \text{brush(dean)}, \text{feed(dean)} + \text{brush(carl)}, \ldots \} \]

\[ \{ \text{feed}_{e(e)} + \text{brush}_{e(e)} \} \quad \{ \text{carl}_e + \text{dean}_e \} \]

No syntactically derived predicates needed; in cases of ‘non-lexical cumulation’, the composition rule applies at each intervening node.
For this rule to be generalizable – one more level of complexity: Plural sets

(15) feed and brush Carl and Dean

{ feed(carl)+brush(dean), feed(dean)+brush(carl), … }
Pluralities across semantic domains

- All domains contain pluralities (including domains for complex types).
- We define a sum-operation $+$ for any type: Isomorphic to union of sets of atoms.

\[(16) \quad D_e = \{ \text{Ada, Bea, Ada+Bea} \}, \]
\[D_{(e,t)} = \{ \lambda x.\text{smoke}(x), \lambda x.\text{dance}(x), \lambda x.\text{smoke}(x) + \lambda x.\text{dance}(x) \ldots \} \]

Plural sets

- For every type $a$ there is a type $a^*$ of ‘plural sets’.
- The domains $D_{(a,t)}$ and $D_{a^*}$ are disjoint, but have the same algebraic structure. We write $[\ ]$ instead of $\{\ }$ for plural sets.

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We employ some ‘trivial’ **type shifts** between domains $D_a$, $D_{a*}$ that we don’t indicate.

Plural definites and indefinites denote plural sets of type $e^*$

(18) \([\text{the girls}] = [\text{Ada}+\text{Bea}]\)

(19) \([\text{two pets}] = [\text{Carl}+\text{Dean}, \text{Carl}+\text{Eric}, \text{Dean}+\text{Eric}]\)

Conjunction involves ‘recursive’ sum $\oplus$

(20) \([\text{Ada and two pets}] = [\text{Ada}] \oplus [\text{Carl}+\text{Dean}, \text{Carl}+\text{Eric}, \text{Dean}+\text{Eric}] \]

\[= [\text{Ada}+\text{Carl}+\text{Dean}, \text{Ada}+\text{Carl}+\text{Eric}, \text{Ada}+\text{Dean}+\text{Eric}]\]

**Truth**

A plural set $S$ of propositions is **true** iff $S$ contains at least one element $p$ such that all atomic parts of $p$ are true.
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$= [\text{Ada+Carl+Dean, Ada+Carl+Eric, Ada+Dean+Eric}]$

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Cumulative composition

Cover

A cover of \((P, x)\) is a relation between atomic parts of \(P\) and atomic parts of \(x\) in which each atomic part of \(P\) and each atomic part of \(x\) occurs at least once.

\[
(21) \quad P = \text{smoke+dance}, \quad x = \text{Ada+Bea}
\]

\[
a. \quad \{\langle \text{smoke, Ada} \rangle, \langle \text{dance, Bea} \rangle\}
\]
\[
b. \quad \{\langle \text{smoke, Bea} \rangle, \langle \text{dance, Ada} \rangle, \langle \text{dance, Bea} \rangle\} \ldots
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Compositional rule for cumulation: \(C\)

- It takes two plural sets \(P^{*}_{(a,b)}\) and \(x^{*}_{a}\), and gives us a plural set of type \(b^{*}\).
- We take all covers of some plurality from \(P^{*}_{(a,b)}\) and some plurality from \(x^{*}_{a}\).
- For each cover \(R\), we form the sum of values \(+\{P(x) \mid (P, x) \in R\}\). (actually we use the ‘recursive sum’ \(\oplus\) when functional application returns plural sets)

\[
(22) \quad a. \quad \text{Two children are smoking and dancing.}
\]
\[
b. \quad C([\text{smoke+dance}]) ([A+B, A+G, B+G]) = [S(A)+D(B), S(A)+D(G), S(B)+D(G), D(A)+S(B), D(A)+S(G), D(B)+S(G), S(A)+D(A+D(B)), \ldots]
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\[(22)\]

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Deriving the flattening effect for conjunction

(23) The two girls made Gene [[feed the two dogs] and [brush Eric]]

(24) \[\text{[feed}(C) + \text{feed}(D) + \text{brush}(E)]\]
Deriving the flattening effect for conjunction

(23) The two girls made Gene [[feed the two dogs] and [brush Eric]]

(24) \[\text{[feed(C)+feed(D)+brush(E)]}\]
Interim summary: Plural projection

- Semantic plurality ‘projects’ by means of a cross-categorial operation $C$ which also encodes cumulativity.
- This is made possible by assuming pluralities and plural sets of any semantic type.
- Syntactically derived cumulative relations and the corresponding LF movement are not needed: In the case of non-lexical cumulation $C$ applies at every intervening node.
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Interim summary: Plural projection

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1. Singular universals and distributive conjunctions

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What we will do

We will give a new meaning for *every* that capture cumulativity asymmetries:

(25)  
  a.  *Every girl fed (the) two dogs.*  
  b.  *(The) two girls fed every dog in this town.*

Rationale based on Schein sentences: We want predicate pluralities that ‘cover’ every dog and assign two tricks to each dog.

(26)  *Ada and Bea taught every dog two new tricks.*

(27)  
{taught C T1 + taught C T2 + taught D T1 + taught D T2,  
taught C T1 + taught C T2 + taught D T2 + taught D T3,  
taught C T3 + taught C T2 + taught D T1 + taught D T2, . . .}
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every DPs, informally

• Function of type $\langle \langle e, a \rangle^*, a^* \rangle$ – directly manipulates plural sets of predicates.

(28)  
\textit{every girl fed two pets}  
$[\text{every girl}][\text{feed}(C) + \text{feed}(D), \text{feed}(C)+\text{feed}(E), \text{feed}(D)+\text{feed}(E)]$

• For each atomic individual $x$ in the restrictor, we choose a predicate-plurality $P$ from the scope, apply each $P' \leq_a P$ to $x$ and take the sum ($P$ applies ‘distributively’ to $x$)

(29)  
$\text{feed}(C)(A)+ \text{feed}(D)(A), \text{feed}(C)(B)+ \text{feed}(E)(B), \ldots$

• For each such assignment of predicate-pluralities, we take the sum over all individuals and form the plural set of all such sums

(30)  
$[\text{every girl}][\text{feed}(C) + \text{feed}(D), \text{feed}(C)+\text{feed}(E), \text{feed}(D)+\text{feed}(E)] = 
[\text{feed}(C)(A)+ \text{feed}(D)(A) + \text{feed}(C)(B)+\text{feed}(E)(B),$
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  (28) *every girl fed two pets*

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(31) *Every girl in this town fed the two dogs.*  

Prediction  
Singular universals always distributive wrt. material in their scope
(31) *Every girl in this town fed the two dogs.* 

(32) 
\[ \text{[A fed C + A fed D + B fed C + B fed C]} \]

\[
\text{every girl} \\
\text{fed} \\
\text{[fed(C) + fed(D)]} \\
\text{[C + D]} \\
\text{the two dogs}
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Prediction

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(33) The two girls fed every dog in this town.  
cumulative possible

(34) \[ C([A+B])([\text{fed } C+f\text{ed } D]) \]
\[ = [ A \text{ fed } C+B \text{ fed } D, B \text{ fed } C+A \text{ fed } D, \ldots ] \]

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Cumulation with material outscoping every possible, since every \( P \; Q \) returns a plurality
Deriving cumulativity asymmetries (2/2)

(33) *The two girls fed every dog in this town.*  

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(34) $C([A+B])[[\text{fed } C+\text{fed } D]]$

$= [A \text{ fed } C+B \text{ fed } D, B \text{ fed } C+A \text{ fed } D, \ldots ]$

Prediction

Cumulation with material outscoping every possible, since every $P \ Q$ returns a plurality.
(35) *Ada and Bea taught every dog two new tricks.*

\[
\begin{align*}
\text{Ada and Bea} & \quad \text{taught C T1} + \text{taught C T2} + \text{taught D T2} + \text{taught D T3,} \\
& \quad \text{taught D T1} + \text{taught D T2} + \text{taught C T2} + \text{taught C T3,} \ldots \\
\text{every dog} & \quad \text{taught T1} + \text{taught T2,} \\
& \quad \text{taught T2} + \text{taught T3,} \text{ taught T1} + \text{taught T3} \\
& \quad \text{taught two new tricks}
\end{align*}
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(35) Ada and Bea taught every dog two new tricks.

\[\begin{array}{c}
\text{Ada and Bea} \\
\text{taught } C \text{ T1} + A \text{ taught } C \text{ T2} + B \text{ taught } D \text{ T2} + A \text{ taught } D \text{ T3, }
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\end{array}\]
Interim Summary: Plural projection and cumulativity asymmetries

- *every* DPs take plural sets as their argument. They ‘distributively’ apply elements to atoms in the restrictor.
- The result is a plural set, which can be cumulated with higher pluralities.
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Event-based analyses

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(36) *The two girls taught every dog two new tricks.*

(37) \[ \exists e[\text{teach}(e) \land \text{AGENT}(e)(A+B) \land \text{BEN}(e)(+(\text{dog})) \land \forall y \leq_A +\text{(dog)}[\exists Z \in \text{[two tricks]}]. \exists e' \leq e[\text{THEME}(e')(Z) \land \text{BEN}(e')(y)]] \] adapted from Zweig (2008)

Differences to our proposal

- We don’t require events, so we can maintain that some predicates that allow for cumulativity don’t have an event/state argument.

- No special story needed for cumulation across predicates where arguments are neither individuals nor events, such as (some) attitude verbs (38).

(38) *The Georgian ambassador called this morning, the Russian one at noon. They think that Trump should take a walk with Putin and build a hotel in Tbilisi, but neither addressed the Caucasus conflict!*
## Event-based analyses

### Basic idea


Cumulation targets relations between events and individuals.

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32 / 38
Individual-based analysis (1/2)

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- No appeal to events
  - every DPs denote pluralities of individuals
  
  (39) \[ \text{[every dog]} = \text{[the dogs]} = C+D \]

- every must directly c-command a distributivity or cumulation operator (*, **, . . .)

- traces of every DPs must range over atoms

(40) The two girls taught every dog two new tricks.

(41) \[ [[\text{the two girls}][[\text{every dog}]] ** [2 1 [[\text{two new tricks}][3 [t_1 ***taught t_2 t_3 ]]]]]]]

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Differences to our proposal

- Champollion (2010) *must* assume that traces of ADUs range over atoms: No straightforward account for distribution to non-atomic subpluralities.

(43) *Sowohl die Mädchen als auch die Buben haben zwei Hunde gefüttert*

_ Scenario_: The girls fed two dogs between them and the boys fed two dogs between them. **TRUE**

- Our account, as opposed to theories working with syntactically derived predicates, generalizes to flattening effects with conjunction.
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  PRT the girls PRT also the boys have two dogs fed
  ‘Both the girls and the boys fed two dogs.’ (German)

**Scenario:** The girls fed two dogs between them and the boys fed two dogs between them.  

- Our account, as opposed to theories working with syntactically derived predicates, generalizes to flattening effects with conjunction.
Conclusion

- We presented a system that derives cumulativity without syntactically derived cumulative relations.
- This system derives cumulative truth-conditions step-by-step, along the lines of the hierarchical structure.
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- Some technical issues (see handout)
  - Expansion to collective predicates?
  - Expansion to non-upward-monotone DPs (<i>less than five, exactly five . . .</i>)
  - Cross-linguistic differences concerning conditions on cumulative reading – scope vs. grammatical function

(Flor 2017)
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(Flor 2017)
Magdalena Roszkowski, Dóra Kata Takács and Marcin Wągiel for language consultancy. Kübra Atasoy, Daniel Büring, Enrico Flor, Izabela Jordanoska, Clemens Mayr, Max Prüller, Eva Rosina, Magdalena Roszkowski, Marcin Wągiel, Susi Wurmbrand, Henk Zeevat, Eytan Zweig, as well as the audiences at the University of Göttingen, the University of Tübingen, the University of Brno and the 19th Szklarska Poręba Workshop on the Roots of Pragmasemantics for relevant comments on earlier versions of this work.

We acknowledge the support of the Austrian Science Fund (FWF), project P-29240 ‘Conjunction and disjunction from a typological perspective’. 


Distribution of ADUs: more German examples

Distributive conjunction cross-linguistically

Extending the analysis to distributive conjunction
Why thematic roles aren’t the determining factor – two arguments based on German

**Argument 1**

ADU subjects of embedded infinitives can have cumulative readings even if they are agents.

(44) *Ada und Bea* haben *jedes Haustier* einen *Menschen* *attackieren* gesehen.

Ada and Bea have every pet attack a person.

‘Ada and Bea saw every pet attack a person.’

**Scenario:** Three pets, Carl, Dean and Eric. Ada saw Carl and Eric each attack a person. Bea saw Dean attack a person.

**Conclusion**

Thematic roles by themselves don’t predict when ADUs have cumulative readings.
For some speakers, ADUs in object position have cumulative readings, but not when scrambled over the subject.

(45) **SCENARIO:** Between them, five activists managed to call all the voters in the district. Every voter received one or two calls from activists.


   ‘It’s incredible that five activists called every voter in the district.’ **TRUE**

b. *Ein Wahnsinn, dass jeden Wähler im Bezirk fünf Aktivisten angerufen haben.*

   ‘It’s incredible that every voter in the district got called by five activists.’ **FALSE**
Conclusion

- Thematic roles by themselves don’t predict when ADUs have cumulative readings.
- Availability of a cumulative reading can depend on scope.

But: Judgments are less clear for double object constructions, even though scrambling influences scope there as well.

Maybe grammatical functions matter in addition to scope. This is definitely the case in Italian (Flor 2017). Question for further research!
Distribution of ADUs: more German examples

Distributive conjunction cross-linguistically

Extending the analysis to distributive conjunction
Cumulativity asymmetries: Hungarian distributive conjunction

A is és B is usually taken to be distributive

(47) a. scenario: Sára and Marcsi are organizing a party. Sára called ‘Express Catering’ to organize food. Marcsi called ‘Star Catering’ to organize beer.

b. Szerencsére Sára is és Marcsi is időben felhívta a két kiszállító fortunately Sára is and Marcsi is on-time called the two catering céget.

‘Fortunately, both Sára and Marcsi called the two catering companies ahead of time.’ FALSE

(48) a. scenario: Sára and Marcsi are organizing a party. Sára called Bálint, who is supposed to bring the beer. Marcsi called Péter, who is supposed to bring the food.

b. Szerencsére a két szervező időben felhívta Bálintot is és Pétert is. fortunately the two organizers on-time called Bálint. acc is and Péter. acc is

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examples due to Dóra Kata Takács (pc)
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company.acc

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due to Dóra Kata Takács (pc)
Cumulativity asymmetries: Polish distributive conjunction

(49) a. scenario: Sabina and Magda are organizing a party. Sabina called ‘Express restaurant’ to organize food. Magda called ‘Star restaurant’ to organize beer.

b. Na szczęście i Sabina i Magda dostatecznie wcześnie zadzwonili do tych restauracji. ‘Fortunately, both Sabina and Magda called the two restaurants early enough.’

(50) a. scenario: Sabina and Magda are organizing a party. Sabina called Adam, who is supposed to bring the beer. Magda called Piotr, who is supposed to bring the food.

b. Na szczęście dwie organizatorki dostatecznie wcześnie poinformowały i Adama i Piotra. ‘Fortunately, the two organizers informed both Adam and Piotr early enough.’

TRUE examples due to Magdalena Roszkowski and Marcin Wągiel (pc)
Cumulativity asymmetries: Polish distributive conjunction

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a. **scenario**: Sabina and Magda are organizing a party. Sabina called ‘Express restaurant’ to organize food. Magda called ‘Star restaurant’ to organize beer.

b. *Na szczęście i Sabina i Magda dostatecznie wcześnie zadzwonili do tych restauracji.*

‘Fortunately, both Sabina and Magda called the two restaurants early enough.’

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examples due to Magdalena Roszkowski and Marcin Wągier (pc)
6 Distribution of ADUs: more German examples

7 Distributive conjunction cross-linguistically

8 Extending the analysis to distributive conjunction
Distributive conjunction (1/2)

- We assume a ‘particle’ structure for distributive conjunction. Szabolcsi (2015)

(51)  
 a.  \( A \) is prés \( B \) is prés  
  \( A \text{prt} \) and \( B \text{prt} \)  
 b.  LF: \([ \text{prt} A \text{and} \text{prt} B ])\]  

- Distributive conjunctions are like every DPs, but ‘atoms’ are the individual conjuncts.

- Individual conjuncts can be cumulative wrt. lower plurals:

(52)  \( \text{Sowohl die Mädchen als auch die Buben haben zwei Hunde gefüttert} \)  
  \( \text{PRT} \) the girls \( \text{PRT} \) also the boys \( \text{PRT} \) have two dogs fed  
  ‘Both the girls and the boys fed two dogs.’ (German)

Scenario: The girls fed two dogs between them and the boys fed two dogs between them. TRUE

- We therefore build the cumulation operation \( C \) built into the particle meaning.
We assume a ‘particle’ structure for distributive conjunction. 

(51) a. \[A \text{ is } \text{prt} \text{ and } B \text{ is } \text{prt} \]

b. LF: \([\text{prt } A] \text{ and } [\text{prt } B]]\)

Distributive conjunctions are like every DPs, but ‘atoms’ are the individual conjuncts.

Individual conjuncts can be cumulative wrt. lower plurals:

(52) \text{Sowohl die Mädchen als auch die Buben haben zwei Hunde gefüttert} \text{ (German)}

\text{scenario: The girls fed two dogs between them and the boys fed two dogs between them.}

We therefore build the cumulation operation \(C\) built into the particle meaning.
Distributive conjunction (1/2)

- We assume a ‘particle’ structure for distributive conjunction.  
  Szabolcsi (2015)

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  a.  \( A \text{ is } \text{é}s \text{ B is} \)  
      \( \text{A} \text{ prt} \text{ and B prt} \)  
  b.  LF: [ [\text{prt A} [\text{and} [\text{prt B}]]]

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Distributive conjunction (1/2)

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  a.  \( A \text{ is } \text{és } B \text{ is} \)  
      \( A \text{ PRT and } B \text{ PRT} \)  
  b.  LF: \([ [ \text{PRT A} ] \text{ and } [ \text{PRT B} ]]\)

Szabolcsi (2015)

• Distributive conjunctions are like every DPs, but ‘atoms’ are the individual conjuncts.

• Individual conjuncts can be cumulative wrt. lower plurals:

(52) \( \text{Sowohl die Mädche als auch die Buben haben zwei Hunde gefüttert} \)
    \( \text{PRT the girls PRT also the boys have two dogs fed} \)  
    ‘Both the girls and the boys fed two dogs.’ (German)

Scenario: The girls fed two dogs between them and the boys fed two dogs between them.

TRUE

• We therefore build the cumulation operation \( C \) built into the particle meaning.
Distributive conjunction (2/2)

(53) Sowohl Ada als auch Bea haben getrunken und geraucht.

Both Ada and Bea were drinking and smoking.' (German)

(54) \[ C([\text{drink} + \text{smoke}], [\text{Ada}]) \oplus C([\text{drink} + \text{smoke}][\text{Bea}]) = \]

\[ [[\text{drink}(\text{Ada}) + \text{smoke}(\text{Ada}) + \text{drink}(\text{Bea}) + \text{smoke}(\text{Bea})]] \]

\[ \approx_{\text{shift}} [[\text{drink}(\text{Ada}) + \text{smoke}(\text{Ada}) + \text{drink}(\text{Bea}) + \text{smoke}(\text{Bea})]] \]