“I like work: I can sit and look at it for hours”

type clash vs. plausibility in covert event recovery

Alessandra Zarcone and Sebastian Padó - zarconaa,pado@ims.uni-stuttgart.de - IMS Stuttgart, Germany

Verb 2010 - Pisa, 4-5 November 2010

1. Covert Events (CE)

- the trigger problem: what triggers CEs?
  - type-clash hypothesis

- the range problem: what CEs are triggered?
  - qualia structure hypothesis
  (Pustejovsky 1995, Jackendoff 1997)

2. Open issues in CEs

- the trigger problem: CEs can be triggered for EV and EN/EV nouns, depending on context
  - “I like work: I can sit and look at it for hours” (J. K. Jerome)
  - Mary began the translation

- the range problem: the range of CEs can go beyond qualia-structure-determined events
  - One friend works in the kitchen, helping with food
  - help cooking/preparing food

3. An alternative hypothesis: plausibility-driven recovery

1. candidate retrieval: a number of CE interpretations ce are activated, showing high plausibilities Plaus(v, ce, o; c);

2. CE triggering: Plaus(v, ce, o; c) for the selected interpretations are compared to Plaus(v, o; c);

   1. if Plaus(v, o; c) is high enough to warrant non-CE interpretation, then no CE is retrieved;
   2. if instead the most plausible interpretation involves a CE, then the CE interpretation is selected;

3. CE range: the most plausible CE interpretation for v, o given c is selected and the meaning of e is integrated into the sentence meaning.

4. Method of inquiry

Web-based elicitation study (crowdsourcing):

- trigger problem: correlation between EN/EV and CE/no-CE

- range problem: elicited CEs and explore their range

Task: e.g. “Jan enjoyed the automobile”
- CE/no-CE: does the sentence involve an additional activity that is not mentioned in the sentence?
- elicited CEs: if yes, please give an example

5. Design and materials

Design: 2 (verb factor) x 3 (object factor) Materials: 10 - EN, EV, EN/EV triplets, each in two contexts (begin-verbs vs. spot-verbs)

- EN: Keith enjoyed/approved the automobile on the premises of the company
  - EV: Daniel enjoyed/approved the conference on the premises of the company

Participants: 15 participants from the US

6. Analysis 1: CE vs. no-CE

- low agreement (α = .35) but good agreement with GS (α = .8)

- answer - obj_type * verb_type:
  - sign, effect obj_type (p = 0.001) and verb_type (p = -8.322; p = 0.001) with interaction (p < 0.001)

<table>
<thead>
<tr>
<th>condition</th>
<th>CE</th>
<th>no-CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>begin,EN</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td>spot,EN</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>begin,EN/EV</td>
<td>38%</td>
<td>61%</td>
</tr>
<tr>
<td>spot,EN/EV</td>
<td>6%</td>
<td>94%</td>
</tr>
<tr>
<td>begin,EV</td>
<td>18%</td>
<td>82%</td>
</tr>
<tr>
<td>spot,EV</td>
<td>6%</td>
<td>94%</td>
</tr>
</tbody>
</table>

- the type-clash hypothesis is not enough
  - exceptions possible
  - what is a “begin-term”?
  - behavior of EN/EV objects highly lexically determined

6. Analysis 2: Range of elicited CEs

- average 1.4 CEs per VP and participant (1-6)

- average 3.2 CEs per VP when participant only elicited 1 CE (1-7)

- EN: consider the butter ➪ 5 CEs: eat (x4), add, buy, churn, cook with. eat, make, melt

- EV: start the semester ➪ 3 CEs: spend, teach, join

- EN/EV: prefer the collection ➪ 6 CEs: view (x3), buy, discuss, polish, study, watch

7. Analysis 2: Range of elicited CEs

- average 5 CEs per VP across participants 1-15

- EN: start the portrait ➪ 9 CEs: paint (x2), draw (x4), critique (x3), hang (x2), model (x2), sketch (x2), admire, pose for, review

- EV: enjoy the conference ➪ 4 CEs: attend (x3), hold (x2), participate in, watch

- EN/EV: finish the harvest ➪ 15 CEs: gather (x5), collect (x4), plan (x3), reap (x3), sell (x3), load (x2), store (x2), cook, eat, enjoy, jar, package, pick, pull, ship

- the qualia-structure hypothesis is not enough

8. Conclusions

- An alternative mechanism: plausibility

- CEs also for EV nouns and wide range of recovered CEs

- highly lexically determined CE interpretation

9. Next steps:

- Self-paced reading study, expectations:
  - RT for EN > RT for EV (TC hypothesis)
  - RT for EN/EV highly lexically determined
  - correlation RT - plausibility estimations

- Computational modeling: estimating plausibilities from corpus data

The authors thank Berry Claus and Ulrike Pado for helpful discussions concerning this work.

References


