1. Easy/difficult-constructions

- The swim is difficult
- The piano is difficult to play
- The translation is easy

\[ d[\text{difficult}] = \lambda x \lambda y. d[\text{difficult}(e)] \land P(x) = e \]

- Easy/difficult subcategory for events
- Type-clash: triggers a covert event (CE)
- How is this implicit knowledge retrieved?

2. Coercion: a supertype of phenomena

- Type clashes require "fill in" the missing information
- Type coercion: semantic operation that converts argument to the type that is expected by a function

- The fast typist -> the typist who types fast

3. Lexicon vs. world knowledge

The lexical hypothesis (Pustejovsky 1995):

- qualia structure in the lexicon (book: reading OR writing) => Cfr GL
- economical, neat way to represent linguistic knowledge associated with lexical items
- too restrictive: it only applies to artifacts

Generalized event knowledge (GEK) (McRae and Matsuki 2009):

- prototypical knowledge about typical events and their participants (first and second-hand experience, available in our memory)
- words in isolation immediately activate GEK
- words can rapidly combine to cue specific concepts that are relevant to GEK scenarios

4. Research questions

- can corpus-extracted typical events predict covert events elicited for easy/difficult-constructions?
- can a qualia-based theory account for covert event retrieval in easy/difficult-constructions?

Two-fold exploration:

- elicitation study
- corpus extraction

5. Elicitation study

Materials:

- 30 objects (10 x 3 classes):
  - ENT (entity-denoting): the newspaper
  - EVE (event-denoting): the conference
  - AMB (entity/event-denoting): the breakfast
- 30 objects x 2 adjectives (easy / difficult) = 60 stimuli sentences

Method:

- 15 native speakers of English
- crowdsourcing platform (Snow et al. 2008)
- "The newspaper was difficult" => Does it involve an additional activity that is not mentioned in the sentence? (CE / no-CE binary answer)
- If it does, close completion task (covert event elicitation)

6. Binary answer: CE vs. no-CE

Ent: write, read

Automobile: telic quale (driving) but not agential quale (produce), more typical events are buy, sell, fix, repair

Eve: difficult/easy restrict the range of events to those for which the degree of difficulty is relevant (no light verbs)

AMB:

- events related to their element (clean the shower, but also to their event component (take the shower)

7. Elicited CEs

ENT:

- letter: write, read
- automobile: telic quale (driving) but not agential quale (produce), more typical events are buy, sell, fix, repair

EVE:

- difficult/easy range the events to those for which the degree of difficulty is relevant (no light verbs)

AMB:

- events related to their element (clean the shower) but also to their event component (take the shower)

8. Corpus extraction

Extraction of all verbs having one of the 30 object items as the head of their direct obj

Corpus: ukwWaC (2 billion token corpus of web English, Ferraresi et al. 2008), parsed with the Malt dependency parser (Nivre & Scholz 2004)

Problems with corpus-extracted events

- light verbs (take a shower)
- non discriminative verbs (have breakfast)
- idiosyncrasies (includes breakfast)

9. Elicited events and corpus events

- Elicited CEs ranked (mean reciprocal rank measure)
- Corpus events ranked (obj-V co-occurrences)
- Overlap measure between top 20 elicited events and top 100 corpus events

10. Conclusions and future work

- Lexical Hyp.: qualia are often a subset of elicited events, but sometimes are not elicited
- GEK Hyp.: typical events elicited, but not frequent in the corpus
- Future work:
  - filter light verbs
  - try to identify rare realizations of typical events in corpus data with association measures (Evett 2005)
  - comparison with other types of coercion

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