English Causative Alternation and Hierarchically Structured Lexicon

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Introduction

- Causative alternation: same verb in transitive and intransitive constructions (unaccusative)
 - (1) a. John broke the window.
 - b. The window broke.
 - (2) a. Jane opened the door.
 - b. The door opened.
- Passive vs. Unaccusative
 - (3) a. The window was broken on purpose.
 - b. *The window broke on purpose.

Challenges

- Semantic class (e.g., change-of state verbs) doesn't predict alternation.
 - (4) a. *The toys ruined in the rain.b. *All the chickens killed.
 - (5) a. *He fell the glass.
 - b. *The criminal died an innocent person.
 - c. *The farmer blossomed the fruit trees.
 - (6) a. I cleared the screen.
 - b. The screen cleared.
 - (7) a. The waiters cleared the counter.
 - b. *The counter cleared.

Limitations of Traditional Accounts

- lexical or syntactic operations involving arity changes adds or removes an argument
 - Decausativization analyses
 - Causativization analyses
- Polysemy analyses
 - Ignores the connection between the two alternants
- Lexical idiosyncrasies not explained well
 - Kill vs. die

Decausativization Analysis

- The verbs participating in causative alternation are basically dyadic
 - Grimshaw 1982; Reinhart 2002; Chierchia 2004 ...
 - It explains why *murder* and *kill* do not have intransitive counterparts
 - Decausativization: Reduction of [+cause] role (Reinhart 2002) $V_{ACC} (\theta_{[+C]}, \theta_j) \rightarrow V(\theta_j)$
 - (9) a. Antonia/the wind/the ball broke the window.b. The window broke.
 - c.f *murder*
- However:

(10) a. He broke his promise.

b. *His promise broke.

Causativization Analysis

- The transitive causative alternant is derived from the intransitive inchoative alternant
 - (Lakoff 1966; Dowty 1989; Hale and Keyser 1993; H["]artl 2003)
 - (11) basic LCS of *break*: [BECOME BROKEN (x)] \rightarrow
 - derived LCS of *break*: [(y) CAUSE [BECOME BROKEN (x)]]
 - It explains:
 - (12) a. The letter arrived.
 - b. The vase fell.
 - c. The person died.
- However:
 - Fails with internally caused change-of-state verbs: *blossom, tremble*
 - Overgeneration problems:
 - (12) a. The letter arrived.
 - b. The vase fell.
 - c. The person died.

Construction-Based HPSG Framework

- Entailment-based linking approaches in HPSG (Davis and Koenig 2000; Koenig and Davis 2006)
 - ACT; UND; SOA: disjunctions of entailed properties of situational participants (cf. proto-agent, proto-patient in Dowty, 1991)
 - Avoids pitfalls of thematic roles
 - Transitive lexeme break (preminary)

$$\begin{bmatrix} \text{ACT} & \\ \text{CONTENT} & \\ \text{UND} & 2 \end{bmatrix}$$
$$\begin{bmatrix} \text{ACT} & \\ \text{UND} & 2 \end{bmatrix}$$
$$\begin{bmatrix} \text{ARG-ST} & \\ \text{ARG-ST} & \\ \text{NP}_{1}, & \text{NP}_{2} \end{bmatrix}$$

Elaboration of the framework



- Content values consist of elementary predications characterized by RELS values (Minimal Recursion Semantics; Copestake et al. 2001)
 - cause-rel; change-st-rel
 - KEY: the focal point of the linking process (Koenig & Davis 2006)

Hierarchically structured Lexicon



- Lexical entries contain only minimal information (e.g. KEY; ARG-ST ?)
- It does not choose one of the alternants as the input; but it include only the description of the internal theme argument (cf. Rappaport Hovav 2014)

Hierarchically structured Lexicon



- Inchoa-v-lxm
 ∪ break →
 intransitive
 break
- Causative-vlxm ∪
 break →
 transitive
 break

Intransitive break $\begin{bmatrix} break_{int} - lxm \\ FORM \langle break \rangle \\ KEY \blacksquare \\ REL \langle \blacksquare \rangle \\ ARG-ST \langle NP_{\blacksquare} \rangle \end{bmatrix}$ $\begin{bmatrix} break \\ FORM \langle break \rangle \\ REL \langle \blacksquare \end{bmatrix} \begin{bmatrix} change-st-rel \end{bmatrix}$

Transitive lexeme break $break_{tr} - lxm$ FORM (break MTR KEY 2 REL (2, 1 ARG-ST (NPR NPR break FORM (break) cause-rel DTRS ACT 3 change-st-rel REL (2 1 UND 4 UND 4 SOA 5

Hierarchically structured Lexicon



- No lexical rules, or arity change operations
- Captures how two alternants are connected.
- Accommodates otherwise problematic cases:
 - (21) a. The waiter cleared the counter.
 - b. *The counter cleared.
 - c. The screen cleared.

Lexical idiosyncrasies and KEY features

- die vs. kill
 - Lexical entry die

$$\begin{bmatrix} \text{FORM} \left\langle die \right\rangle \\ \text{KEY I} \\ \text{REL} \left\langle \text{I} \begin{bmatrix} change-st-rel \\ \text{UND I} \end{bmatrix} \right\rangle \end{bmatrix}$$

- In contrast to *break*, the lexical entry for *die* has change-st-rel as a KEY feature specification; die is more restricted in its usage
 - die is not compatible with tran-v-lxm, whose KEY feature designates cause-rel as its value.
 - fall, vanish, arrive

Verbs with internally caused eventualities



- ACT features accommodates *internal causer*
- The semantic property of the subject is identified by ACT and UND entailments respectively in two different semantic relations.

Conclusion

- Unlike traditional theories where lexical entries directly function as lexemes that feed into syntax, this proposal suggests that terminal lexemes inherit constraints from supertype lexemes containing constructional information, as well as from lexical entries encompassing lexical idiosyncrasies.
- In this proposal, the possibility of alternation is determined not by inferential mechanisms related to the nature of the eventuality, but by the potential for unification of feature types within a type hierarchy.
- This method's advantage lies in its ability to reconcile the productive aspects of English causative alternation with the nature of lexical idiosyncrasies without conflict.