LING 248 - 3/1/16
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Theoretical question: can the antecedent of VPE be in a different sentence? Yes. In fact, it doesn't seem that anyone has proposed a limit on distance. (Though locality seems to be preferential.)

- The WSJ corpus has very formulaic use of language, so an algorithm that treats the antecedent of VPE as the closest VP is likely to be successful. Same-sentence VPE seems to be the most common, a mix of syntactic/semantic/pragmatic concerns?

<u>How does Hardt's system work?</u>

1. Rule out cases where VPE is ungrammatical. (Syntactic Filter)
2. Weight candidates for VPE based on 4 preference factors
    a. **Recency** (more recent antecedents are preferred. farthest antecedent is weighted by 1.15, closer antecedents weighted by multiples of 1.15)
    b. Discourse relation markers
    c. **Parallelism** (penalize auxiliary mismatches by weight of 0.667)
        i. Parallelism: What's the difference between VPE and zero anaphora? adjectival antecedents in Japanese can be resolved in *when* clause, e.g. Hanako painted the wall red when Tarou painted the chair [red].
    d. **Quotation** (VPEs within quotations prefer antecedents in other quotations. non-quotative antecedents penalized by 0.667)
3. pick the highest-scoring output

- Containment relations between VPs are common (and indeed, any time there's higher verbal material in an extended verbal projection), and not necessarily immediately obvious. We want to use this information to rule out some antecedent candidates but not others.

- Sometimes there seem to be multiple legitimate candidates for VPE, so Hardt compares three types of matching between coders and between coders/system: exact match, head match (both outputs have the same head), head overlap (head of one contained within the other--satisfied unidirectionally). For human coders, there's 99% agreement with head overlap.

- Bos & Spenader, by comparison, identify 34 separate types of constructions of VPE in WSJ corpus (sidebar - might be interesting to learn these patterns or a proxy for these).
- and found many more instances of VPE than Hardt's relatively simplistic method (tgrep: (VP (-NONE- , ? ,))--NONE is an empty category in Penn Treebank used for a variety of empty categories) , but it's a bit unclear why.
- B&S looked through subcorpus of 155,000 words: Hardt's system provides relatively low precision and low recall