Processing Evidence for the Unaccusative Hypothesis

Idan Landau

(1)   What can on-line processing teach us about the structure of unaccusatives?

Unaccusatives		Unergatives
Non-alternating	Alternating	
arrive, vanish	*break, open*	*smile, chirp*

The Unaccusative Hypothesis claims that unaccusatives are derived by NP-movement from the object position, whereas the subject of unergatives is underived. Occasionally it has also been claimed that in fact only the subject of non-alternating unaccusatives is derived; according to this view, alternating unaccusatives and unergatives are syntactically identical.

The study uses Cross Modal Lexical Priming, a measure that is sensitive to the reactivation of antecedent arguments.

> "If the single argument of unaccusative verbs is base generated in object position, and is displaced to subject position through NP-movement, then we should observe activation of the argument in the object position; we should not observe activation of the subject NP in the object poistion of unergative verbs" (p. 4).

(2)   Cross Modal Lexical Priming

A word presented after a semantically related word is accessed more easily/quicly than when it appears after an unrelated word.

The reactivated word, in the trace position, is used as a auditory prime for another word, presented visually. So sentence [8] is presented aurally, and at certain points a letter sequence is presented visually. The subject has to make a lexical decision (word/non-word) for the visually presented letter sequence.

(3)   <u>Earlier Findings</u>

     a.   If the target word is semantically related to the prime word (e.g., *ballet*), priming occurs (easier/faster lexical access).

     b.   The target can be primed not only by the actual prime word, but also by its trace. This was a classical argument for movement.

     c.   Priming in NP-chains is delayed (relative to A-bar chains).

(4)   <u>Classifiying unaccusatives</u>

Non-alternating unaccusatives were identified by ability to occur in *there*-construction, lack of a transitive variant and lack of passive [9]-[11]. Alternating unaccusatives were identified by the presence of a homonymous transitive variant, occurrence in passive and blocking of resultatives [12]-[14].

<u>Note 1</u>: It's unclear what is tested by the *there*-construction. Friedmann et. al. note that the restrictions on this construction are very subtle and context sensitive (Levin & Rappaport 1995). Actually, some alternating unaccusatives allow it (*begin*, *continue*).

<u>Note 2</u>: It's unclear how resultatives are relevant. [14] is bad not because *roll* is alternating, but because it is ambiguous between unaccusative and unergative, and animate subjects favor the latter. In fact, many alternating unaccusatives take resultatives (*The river froze solid*), while some nonalternating unaccusatives don't (*She arrived breathless*).

(5)   <u>Classifiying unergatives</u>

i) ungrammatical in *there*-construction; ii) ungrammatical with resultatives or reflexive objects, unless both occur together [15]-[18].

<u>Note</u>: Again, the resultative test is just a necessary, not a sufficient condition.

(6)   Examples – [19]-[20].

(7)   Main results [Table 1, p. 13]

   a.   Priming: After the head (position 1) for all verb types; in position 3
          (750 ms after the verb) only for non-alternating unaccusatives and some
          alternating ones.

   b.   No priming: In position 3 for unergatives, and some alternating
          unaccusatives.

   c.   Decay in activation: In position 2 for all verb types.

   (8)   Variable behavior in the alternating class

      a.   Priming (like non-alternating unacc.): *dry, sink, open, bounce,
             freeze, grow*.

      b.   No priming (like unerg.): *crack, swing, shut*.

      c.   Unclear pattern: *close, cook, break, roll, spin, move*.

(9)   Possible explanation for the "unruly" verbs

   a.   Alternating verbs have homonymous transitive variants. Perhaps the
          parser is misanalysing the unaccusative verb as a transitive (so no gap is
          expected), and only retracts at a point beyond those tested for priming.
          Prediction: The irregular pattern will disappear in a language where the
          transitive and the incohative variants are morphologically distinct.

   b.   Gradient unaccusativity: The verbs in (8a) typically take patient subjects,
          those in (8b) typically take agent subjects, and those in (8c) take the two
          types of subjects with equal frequency. Preliminary database search
          confirmed this hypothesis.

          Note: It is still not clear how the fact that *crack* usually takes an agentive
          subject (assuming that's true) forces an unergative analysis even when the
          subject is inanimate (as must have been the case in this study). What's the
          linking rule?

(10)   <u>Conclusions</u>

    a.   The Unaccusative Hypothesis is strongly confirmed.

    b.   The reactivation delay in A-chains, compared with A-bar chains, is probably due to the different cues the parser has for the existence of movement. In A-bar chains (questions, relative clauses), the cue – *wh*-word or complementizer – is available very early; in A-movement, the cue for movement is only the verb itself (indicating the θ-role of the subject).

    c.   (My own): In retrospect, the partition between alternating and non-alternating unaccusatives wasn't illuminating, given that some of the alternating verbs, (8a), are indistinguishable from nonalternating ones. Moreover, this fact alone rules out the proposal in (9a). Further studies will have to look more carefully at the semantic components of classes (8b,c). It is crucial to conduct comparable experiments in languages where morphology doesn't confuse the parser.