

Semantic garden pathing: Subsets and new discourse referents
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In contexts such as (1), 'Five' is ambiguous: it can either be interpreted as a subset of a previously mentioned set ('Five of the eight retirees'), or introduce a new set ('Five other retirees'). Previous research suggests that a subset reading is preferred (Frazier et al., 2005; Wijnen & Kaan, 2006). These studies showed increased processing difficulty when the number word in the second sentence was incompatible with a subset reading, as in (2). It is not clear from these studies, however, whether readers strongly commit to a subset reading in cases such as (1); and whether a new set of discourse entities is established in cases such as (2).

To test this, we conducted a stop-making-sense and a self-paced reading study (44 and 40 participants). Experimental materials consisted of eight trials each of the four conditions illustrated in (3). The number in the second sentence was either smaller or larger than in the first, and hence, compatible (3a, b) or incompatible (c, d) with a subset interpretation. The fourth word (bold) either was compatible with a subset interpretation (a, c), or not (b, d). If readers commit to a subset interpretation at 'Five' in (3a, b), they will experience processing difficulty when later information is incompatible with a subset interpretation ('Japan' in (3b)). If readers set up a new referent set at the number word in (3c, d); they should experience processing difficulty at the critical word 'France' in (3c), but not at 'Japan' in (3d).

Replicating previous studies, the stop-making-sense study showed a larger percentage of 'no' responses and longer response latencies for 'yes' responses at the (underscored) number word when this was incompatible with a subset interpretation (3a, b vs. c, d). Crucially, at the critical fourth word, an increase in 'no' responses and RTs were seen for (b) versus (a), suggesting that readers are indeed committed to a subset reading and led down the discourse-semantic garden path. However, difficulty was also observed at the critical word in (c) and (d) versus (a), suggesting that readers do not systematically establish a new discourse referent when the second number is larger than the first. The self-paced reading study, in contrast, showed effects of garden-pathing and anomaly only at the sentence-final position (RTs longer in (b, c) than (a,d)). Poor comprehenders showed a negative correlation between the time spent on the number word in (c,d) vs. (a,b) and reading times following the critical word in (d) versus (a). This suggests that if the subset-incompatibility of the number word is noticed, a new reference set may be established, making it easier to integrate subset-incompatible information downstream.

These results suggest that readers may indeed commit to a subset reading in (1) and establish a new discourse referent in (2), but that this depends a great deal on participant strategies and task conditions (cf. Sanford & Sturt, 2002).

1. Eight retirees had booked a trip to Europe. Five had...
2. Four retirees had booked a trip to Europe. Five had...
- 3a. Eight retirees had booked a trip to Europe. Five had chosen **France** for a week long tour. (subset, ok)
- 3b. Eight retirees had booked a trip to Europe. Five had chosen **Japan** for a week long tour. (garden path)
- 3c. Four retirees had booked a trip to Europe. Five had chosen **France** for a week long tour. (new referent, anomalous)
- 3d. Four retirees had booked a trip to Europe. Five had chosen **Japan** for a week long tour. (new referent, ok)

Frazier, Clifton, et al. (2005). JPR, 34, 201-230.
Kaan & Wijnen (2006). LCP, 21, 684-720.
Sanford & Sturt (2002). TiCS, 6, 382-386.