The case of d-linking, sluicing and memory constraints on movement
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(1) Which-N’ phrases improve acceptability of (Superiority, Weak Island) violations
   a. What did who hide?
   b. Which tigers did which poacher hide?

(2) Such phrases are typically d-linked— they refer to established discourse entities. (Pesetsky, 1987)
   a. Some men entered the room. Mary talked to them.
   b. Some men entered the room. Which ones did Mary talk to?
   c. Some men entered the room. Who did Mary talk to?

This representational distinction is thought to allow them to establish A’ dependencies in ways other than (phrasal) movement. (Pesetsky, 1987, 2000).

(3) Hofmeister’s proposal (dissertation, CogSci paper, submitted ms)
   (a) D-linked wh-phrases ameliorate dependency formation generally.
   (b) Why? Their relationship to discourse is not driving the effect, rather it is the fact that they are more complex/informative. E.g., by having lexically-contentful restrictors.
   (c) This, in turn, is related (but not identical) to what is known in the memory literature as levels/depth of processing effects (Craik & Lockhart, 1972)
   (d) More elaborative or ‘contentful’/‘semantically-rich’ encoding leads to greater success at retrieval. There are a variety of hypotheses why, but generally the idea is that the more information that exists in an encoding, the more routes there are to retrieving it.

(4) Craik (2002) Memory, 10: 305-318:
   “Experiments by Craik & Tulving (1975) and by Johnson-Laird, Gibbs, and de Mowbray (1978) showed that recollection improves as further meaningful processing is performed at the time of encoding. In similar demonstrations Bransford and his colleagues showed convincingly that greater degrees of semantic elaboration, greater precision and specificity of encoding, and a better fit with subjects’ expertise all led to improved memory performance (Bransford et al., 1979).” p. 311.
(5) Some evidence (from the H’s 2007 CogSci paper)

Scooter hid from the reporter who talked about the recent ABC political poll on a recent evening news segment.

**Simple:** What did the reporter that Scooter avoided discuss during an evening news segment?

**Which:** Which poll did the reporter that Scooter avoided discuss during an evening news segment?

**Complex:** Which political poll did the reporter that Scooter avoided discuss during an evening news segment?

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Figure 2: Residual reading times at matrix verb (e.g. discussed) in experiment 2

Figure 3: Residual reading times at first word after matrix verb (spillover) in experiment 2

**Simple:** It was a communist who the members of the club banned from ever entering the premises.

**Mid:** It was an alleged communist who the members of the club banned from ever entering the premises.

**Complex:** It was an alleged Venezuelan communist who the members of the club banned from ever entering the premises.

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Figure 4: Residual reading times at subcategorizing verb in experiment 3
(6) Frazier & Clifton’s question to Hofmeister: what should we expect for sluicing?

(7) I know Britney destroyed something but she didn’t reveal what she destroyed.

(8) F&C reason that in sluicing, the filler resides in focal attention when the gap must be bound.

“On current views of memory, the last item to be processed remains active in memory and thus retrieval from memory should not be involved when a d-linked phrase must bind a gap without any intervening material (see review and integration of memory research in Jonides et al., 2008, for example).” p. 8

(9) This may be true: if it’s the case that only pronounced constituents can shunt items from focal attention; this is not far fetched, but not obviously true.

(10) This may be false: if, plausibly, integration of the antecedent at the sluice site shunts the filler from focal attention.
In other words, comprehension of a sluice could precede at some level just like comprehension of non-sluiced clause.

(11) But it still seems reasonable to expect that processing resources should be less drained in the sluicing case, since there is very little structure-building to do, no lexical items to access, etc. etc.

(12) Does d-linking improve acceptability of sluices?

a. the effect of d-linking on a sluice could be attenuated if the benefit of d-linking accrues largely from a d-linked phrase’s ability to ease processing by virtue of its eminent retrievability
b. the effect of d-linking on a sluice would not be expected to be attenuated if the d-linking benefit derives from a property of d-linked phrases that allows them to bind the gap differently from a bare wh.

(13) Acceptability ratings task, 5-point scale 16 experimental items, 48 participants

a. ISLAND/BARE Britney likes this guy who destroyed a new vehicle but she didn’t reveal what.
b. ISLAND/COMPLEX ... but she didn’t reveal which vehicle.
c. NON-ISLAND/BARE Britney likes this guy who destroyed a new vehicle but she didn’t reveal what.
d. NON-ISLAND/COMPLEX ... but she didn’t reveal which vehicle

a. Jason knows the guy who hit an important politician but he wouldn’t tell us who/which politician.
b. We heard that Jason hit an important politician but he wouldn’t say who/which politician.
(14) **Results**
Main effect of phrase type ($F_{1}(1,47) = 24, p < .001; F_{2}(1,15) = 15, p < .001$) and elision site ($F_{1}(1,47) = 27, p < .001; F_{2}(1,15) = 33, p < .001$).
No interaction ($Fs < 1.5$)

(15) But ... maybe the fact that the content is lexically expressed in the complex phrase aids in the identification of the antecedent for the sluice.

(16) 4 items had complex phrases of the form ‘which one’; here the same pattern obtains

<table>
<thead>
<tr>
<th>phrase type</th>
<th>SIMPLE</th>
<th>COMPLEX</th>
<th>SIMPLE</th>
<th>COMPLEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>'which one'</td>
<td>3.14</td>
<td>3.45</td>
<td>3.75</td>
<td>4.04</td>
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<tr>
<td>'which LEX'</td>
<td>3.17</td>
<td>3.76</td>
<td>3.8</td>
<td>4.15</td>
</tr>
</tbody>
</table>

(17) The robustness of the ‘which one’ case seems crucial to me (MW); Craik (2002) in his review emphasizes the fact that elaborative processing is only beneficial to the extent that information is added to an encoding. Merely spending more time at encoding is not sufficient.

(18) “D-linked interrogatives may immediately receive a discourse representation in addition to their syntactic representation. As a result, the d-linked phrase will be part of a more structured representation. The advantage of being represented in the discourse representation may include persisting longer in cases of memory overload, assuming that discourse representations are more integrated with long-term memory structures than are syntactic representations. But even without memory overload or memory retrieval difficulties, the discourse representation may enjoy an advantage over a syntactic representation, at the very least under circumstances where the dependency in question implies familiarity with the entity in question.” F&C, p. 14