

**Supplementary Materials for ‘Navigating ellipsis structures in memory: New insights from computational modeling’ by Dan Parker**

**1. Experimental materials for Experiment 1**

***Voice match items***

- |    |                 |   |
|----|-----------------|---|
| 1  | Active-Active   | Bill pushed the new girl and John did too.                                    |
| 1  | Passive-Passive | The girl was pushed again by Bill and Jill was too.                           |
| 2  | Active-Active   | Customs questioned the student and Immigration did too.                       |
| 2  | Passive-Passive | The student was questioned by Customs and his friend was too.                 |
| 3  | Active-Active   | The IRS investigated the accountant and the police did too.                   |
| 3  | Passive-Passive | The accountant was investigated by the IRS and the CEO was too.               |
| 4  | Active-Active   | The Cubans beat the volleyball team and the Germans did too.                  |
| 4  | Passive-Passive | The volleyball team was beaten by the Cubans and the tennis team was too.     |
| 5  | Active-Active   | The audience booed the guitarist and the club owner did too.                  |
| 5  | Passive-Passive | The guitarist was booed by the audience and the lead singer was too.          |
| 6  | Active-Active   | The seller criticized the table and the buyer did too.                        |
| 6  | Passive-Passive | The table was criticized by the seller and the chairs were too.               |
| 7  | Active-Active   | The customer praised the dessert and the critic did too.                      |
| 7  | Passive-Passive | The dessert was praised by the customer and the appetizer was too.            |
| 8  | Active-Active   | Jill photographed the house and Sally did too.                                |
| 8  | Passive-Passive | The house was photographed by Jill and the garage was too.                    |
| 9  | Active-Active   | Phelps broke the old 400 meter record and Thorpe did too.                     |
| 9  | Passive-Passive | The old 400 meter record was broken by Phelps and the 200 meter was too.      |
| 10 | Active-Active   | Kate revealed the secret recipe and Sandra did too.                           |
| 10 | Passive-Passive | The secret recipe was revealed by Kate and the chef’s private notes were too. |
| 11 | Active-Active   | The department head called the library and the department secretary did too.  |
| 11 | Passive-Passive | The library was called by the department head and the records office was too. |
| 12 | Active-Active   | Tom criticized the local writers and the professor did too.                   |
| 12 | Passive-Passive | The local writers were criticized by Tom and the local paper was too.         |

***Voice mismatch items***

- |   |                |   |
|---|----------------|---|
| 1 | Passive-Active | The girl was pushed again by Bill after John did already.                             |
| 1 | Active-Passive | Bill pushed the new girl after Jill was already.                                      |
| 2 | Passive-Active | The student was questioned by Customs after Immigration did previously.               |
| 2 | Active-Passive | Customs questioned the student after his friend was previously.                       |
| 3 | Passive-Active | The accountant was investigated by the IRS on Tuesday after the police did on Monday. |

3	Active-Passive	The IRS investigated the accountant after the CEO was on Monday.
4	Passive-Active	The volleyball team was beaten by the Cubans after the Germans did previously.
4	Active-Passive	The Cubans beat the volleyball team after the tennis team was previously.
5	Passive-Active	The guitarist was booed by the audience after the club owner himself did earlier.
5	Active-Passive	The audience booed the guitarist after the lead singer herself was earlier.
6	Passive-Active	The table was criticized by the seller after the buyer did already.
6	Active-Passive	The seller criticized the table after the chairs were already.
7	Passive-Active	The dessert was praised by the customer after the critic did already.
7	Active-Passive	The customer praised the dessert after the appetizer was already.
8	Passive-Active	The house was photographed by Jill after Sally did previously.
8	Active-Passive	Jill photographed the house after the garage was previously.
9	Passive-Active	The old 400 meter record was broken by Phelps after Thorpe did previously.
9	Active-Passive	Phelps broke the old 400 meter record after the 200 meter was previously.
10	Passive-Active	The secret recipe was revealed by Kate after Sandra did already.
10	Active-Passive	Kate revealed the secret recipe after the chef's private notes were already.
11	Passive-Active	The library was called by the department head after the department secretary did previously.
11	Active-Passive	The department head called the library after the records office was previously.
12	Passive-Active	The local writers were criticized by Tom after the professor did already.
12	Active-Passive	Tom criticized the local writers after the local paper was already.

### ***Gerundive antecedent items***

1	Verbal Gerund	Singing the arias tomorrow night will be difficult but Maria will.
1	Nominal Gerund	Tomorrow night's singing of the arias will be difficult but Maria will.
2	Verbal Gerund	Running the race tomorrow will be arduous but John will nevertheless.
2	Nominal Gerund	Tomorrow's running of the race will be arduous but John will nevertheless.
3	Verbal Gerund	Drinking beer Thursday night was irresponsible but Jake did anyway.
3	Nominal Gerund	Thursday night's drinking of beer was irresponsible but Jake did anyway.
4	Verbal Gerund	Rescheduling the meeting caused problems but the boss did anyway.
4	Nominal Gerund	This morning's rescheduling of the meeting caused problems but the boss did anyway.
5	Verbal Gerund	Auctioning the violin yesterday wasn't supposed to happen but the Douglas Gallery did.

5	Nominal Gerund	Yesterday's auctioning of the violin wasn't supposed to happen but the Douglas Gallery did.
6	Verbal Gerund	Hiking the mountain yesterday proved difficult but the children did.
6	Nominal Gerund	Yesterday's hiking of the mountain proved difficult but the children did.
7	Verbal Gerund	Playing football in the dark tonight was forbidden but the teenagers did anyway.
7	Nominal Gerund	Playing football in the dark tonight was forbidden but the teenagers did anyway.
8	Verbal Gerund	Renovating the house last year cost a lot of money but the homeowners did anyway.
8	Nominal Gerund	Last year's renovating of the house cost a lot of money but the homeowners did anyway.
9	Verbal Gerund	Repainting the community center was rather laborious but volunteers did.
9	Nominal Gerund	The repainting of the community center was rather laborious but volunteers did.
10	Verbal Gerund	Washing the breakfast dishes was boring but Jake did.
10	Nominal Gerund	The washing of the breakfast dishes was boring but Jake did.
11	Verbal Gerund	Rewriting the annual report took forever but Joan did.
11	Nominal Gerund	The rewriting of the annual report took forever but Joan did.
12	Verbal Gerund	Cooking an elaborate meal conflicted with the rehearsal but Julia did anyway.
12	Nominal Gerund	The cooking of an elaborate meal conflicted with the rehearsal but Julia did anyway.

## 2. Cue specifications for the model

**Table 1.** Active-Active retrieval cues and antecedent features.

Retrieval cues	Retrieval cue value	Antecedent features	Cue match
category:	VP	VP	✓
clause:	main	main	✓
voice:	active	active	✓
Marking:	null	null	n.a.

**Table 2.** Passive-Passive retrieval cues and antecedent features.

Retrieval cues	Retrieval cue value	Antecedent features	Cue match
category:	VP	VP	✓
clause:	main	main	✓
voice:	passive	passive	✓
Marking:	passive	passive	✓

**Table 3.** Active-Passive retrieval cues and antecedent features.

Retrieval cues	Retrieval cue value	Antecedent features	Cue match
category:	VP	VP	✓
clause:	main	main	✓
voice:	passive	active	✗
Marking:	passive	null	✗

**Table 4.** Passive-Active retrieval cues and antecedent features.

Retrieval cues	Retrieval cue value	Antecedent features	Cue match
category:	VP	VP	✓
clause:	main	main	✓
voice:	active	passive	✗
Marking:	null	passive	n.a.

**Table 5.** Verbal gerund retrieval cues and antecedent features.

Retrieval cues	Retrieval cue value	Antecedent features	Cue match
category:	VP	VP	✓
clause:	main	embedded	✗
voice:	active	active	✓
Marking:	null	null	n.a.

**Table 6.** Nominal gerund retrieval cues and antecedent features.

Retrieval cues	Retrieval cue value	Antecedent features	Cue match
category:	VP	NP	✗
clause:	main	embedded	✗
voice:	active	null	✗
Marking:	null	null	n.a.

### 3. Model parameters

**Table 7.** Parameter settings for the computational model

Parameter	Value
Latency Factor ( $F$ )	0.20
Decay ( $d$ )	0.50
Total source activation ( $G$ )	1.00
Maximum associative strength ( $S$ )	1.50
Maximum difference ( $P$ )	-0.60
Noise ( $\epsilon$ )	0.45

