

# Representational agreement attraction

## Evidence from illusory feature conjunction in Hebrew

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# Agreement attraction

1) \*The fan of the star are waiting



2) \*The fan of the stars are waiting



## Production

More agreement errors are observed in (2) than (1).

(e.g., Bock & Miller, 1991; Staub, 2009)

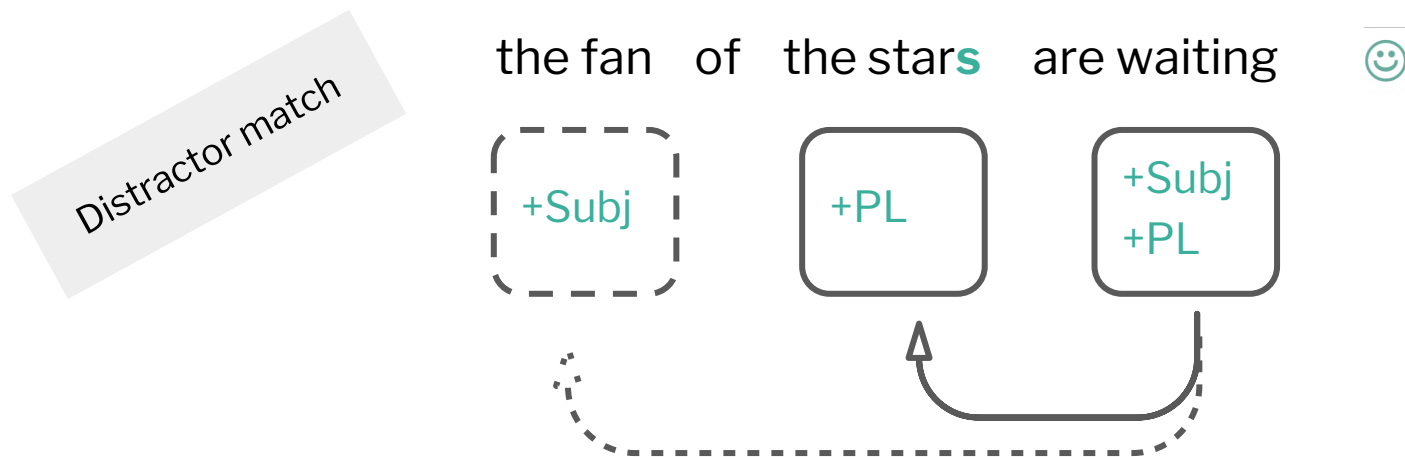
## Comprehension

Less likely to judge (2) as unacceptable compared to (1);  
exhibit less difficulty in (2) compared to (1).

(e.g., Pearlmutter, Garnsey, & Bock, 1999;  
Wagers, Lau, & Phillips, 2009)

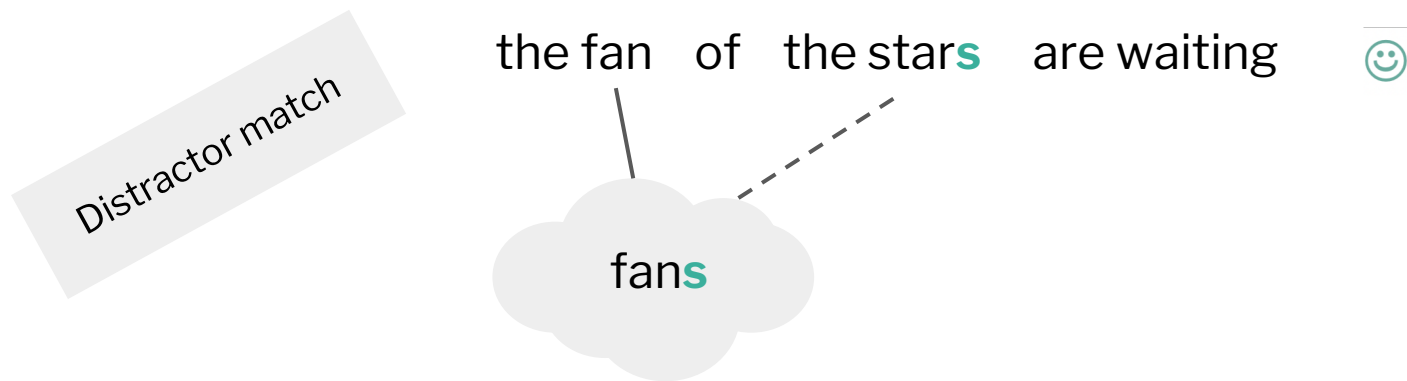
# Retrieval interference

The process of retrieval may pick out the wrong element, resulting in an ungrammatical dependency.



# Feature migration

Features may spread erroneously from one element to another, resulting in an unfaithful representation.



## Composite attraction in Hebrew

Composite match

3) \*The fan.**F.SG** of the star.**M.PL** wait.**F.PL**

The ungrammatical verb matches a conjunction of features across the nouns

No match

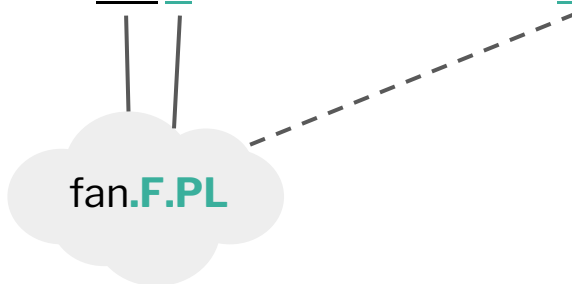
4) \*The fan.**F.SG** of the star.**F.SG** wait.**F.PL**

The verb mismatches the two nouns in one feature, but plurality is absent

# Predictions: Feature migration

Composite match

3) ha-ohed**et**    šel ha-koxav**im**    adain mexak**ot**  
 the-fan.**F.SG**    of the-star.**M.PL**    still    wait.**F.PL**



No match

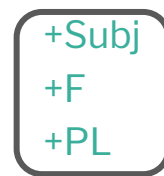
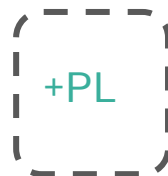
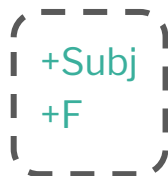
4) ha-ohed**et**    šel ha-koxe**vet**    adain mexak**ot**  
 the-fan.**F.SG**    of the-star.**F.SG**    still    wait.**F.PL**



# Predictions: Retrieval interference

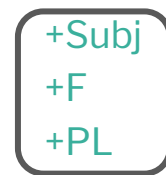
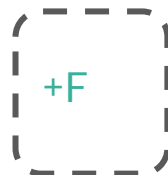
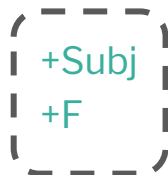
Composite match

- 3) ha-ohed**et**    šel ha-koxav**im**    adain mexak**ot**  
 the-fan.**F.SG**    of the-star.**M.PL**    still    wait.**F.PL**



No match

- 4) ha-ohed**et**    šel ha-koxe**vet**    adain mexak**ot**  
 the-fan.**F.SG**    of the-star.**F.SG**    still    wait.**F.PL**



## Materials

(24 sets)

Feat. Mig. CBR

✓	Target match	... ha-ohad <b>ot</b> šel ha-koxav <b>ot</b> adain mexak <b>ot</b> ... the-fan. <b>F.PL</b> of the-star. <b>F.PL</b> still    wait. <b>F.PL</b>	😊	😊
*	No match	... ha-ohed <b>et</b> šel ha-koxev <b>et</b> adain mexak <b>ot</b> ... the-fan. <b>F.SG</b> of the-star. <b>F.SG</b> still    wait. <b>F.PL</b>	😞	😞
*	Composite match	... ha-ohed <b>et</b> šel ha-koxav <b>im</b> adain mexak <b>ot</b> ... the-fan. <b>F.SG</b> of the-star. <b>M.PL</b> still    wait. <b>F.PL</b>	😊	😞
*	Distractor match	... ha-ohed <b>et</b> šel ha-koxav <b>ot</b> adain mexak <b>ot</b> ... the-fan. <b>F.SG</b> of the-star. <b>F.PL</b> still    wait. <b>F.PL</b>	😊	😊



## Method and participants

- **88** participants, **69** after exclusion (filler accuracy).
- **Centered RSVP**: word 250ms; break 100ms.
- **Binary acceptability judgement** task: 2500ms time limit.

## Results: Accuracy



### Agreement attraction

*Distractor match << No match*

Est. -0.8, Est. Error 0.16, 95% CrI [-1.12, -0.47]



### Composite attraction

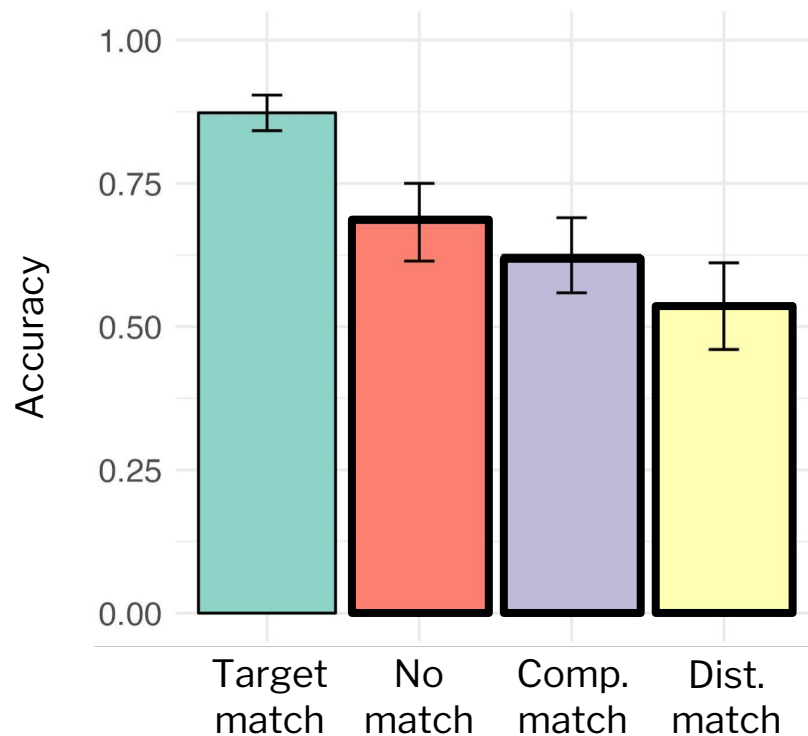
*Composite match << No match*

Est. -0.33, Est. Error 0.16, 95% CrI [-0.65, -0.02]



*Composite match >> Distractor match*

Est. 0.48, Est. Error 0.15, 95% CrI [0.18, 0.78]



## Discussion

### *Composite match*

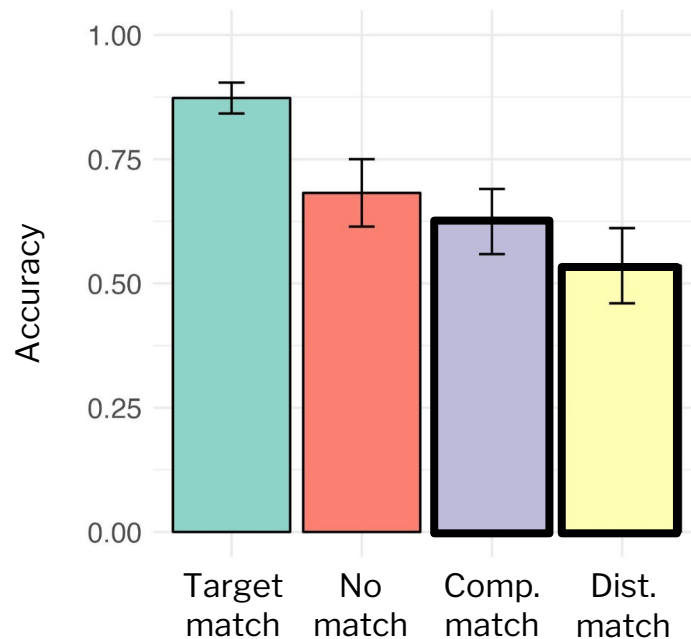
ha-ohed**et**    šel ha-koxav**im**    adain mexak**ot**  
 the-fan.**F.SG** of the-star.**M.PL** still    wait.**F.PL**

### *Distractor match*

ha-ohed**et**    šel ha-koxav**ot**    adain mexak**ot**  
 the-fan.**F.SG** of the-star.**F.PL** still    wait.**F.PL**

Representational + retrieval interference?  
 (Yadav et al. 2023)

Surface form match?



# Feature migration

Composite match

3) ha-ohed**et**    šel ha-koxav**im**    adain mexak**ot**  
the-fan.**F.SG**    of the-star.**M.PL**    still    wait.**F.PL**

fan.**F.PL**

No match

4) ha-ohed**et**    šel ha-koxe**vet**    adain mexak**ot**  
the-fan.**F.SG**    of the-star.**F.SG**    still    wait.**F.PL**

fan.**F.SG**

## Materials (18 sets)

*No match*      ... ha-ohed**et**    šel ha-koxe**vet**    tamid   be-haxanot...  
                  the-fan.**F.SG** of   the-star.**F.SG** always in-preperations

*Composite match*      ... ha-ohed**et**    šel ha-koxav**im**    tamid   be-haxanot...  
                  the-fan.**F.SG** of   the-star.**M.PL** always in-preperations

*Distractor match*      ... ha-ohed**et**    šel ha-koxav**ot**    tamid   be-haxanot...  
                  the-fan.**F.SG** of   the-star.**F.PL** always in-preperations

*Probe*                    ohad**ot**  
                  fan.**F.PL**

## Method and participants

- **90** participants, **87** after exclusion (filler accuracy).
- **Centered RSVP**: word 250ms; break 100ms.
- **Probe recognition** task: 3000ms time limit.

## Results: Accuracy



### Agreement attraction

*Distractor match < No match*

Est. -1.07, Est. Error 0.2, CrI 95% [-1.48, -0.66]

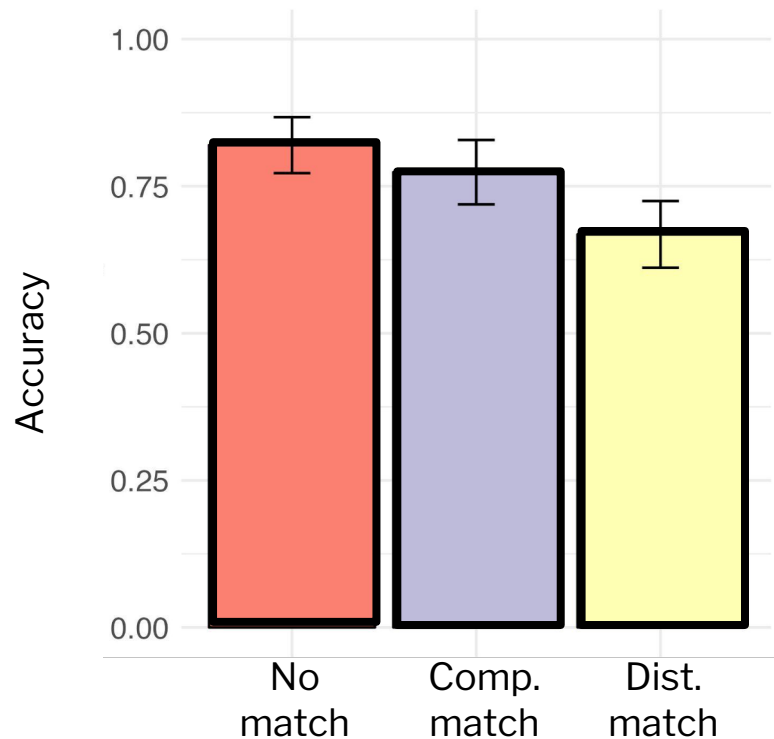


### No composite attraction

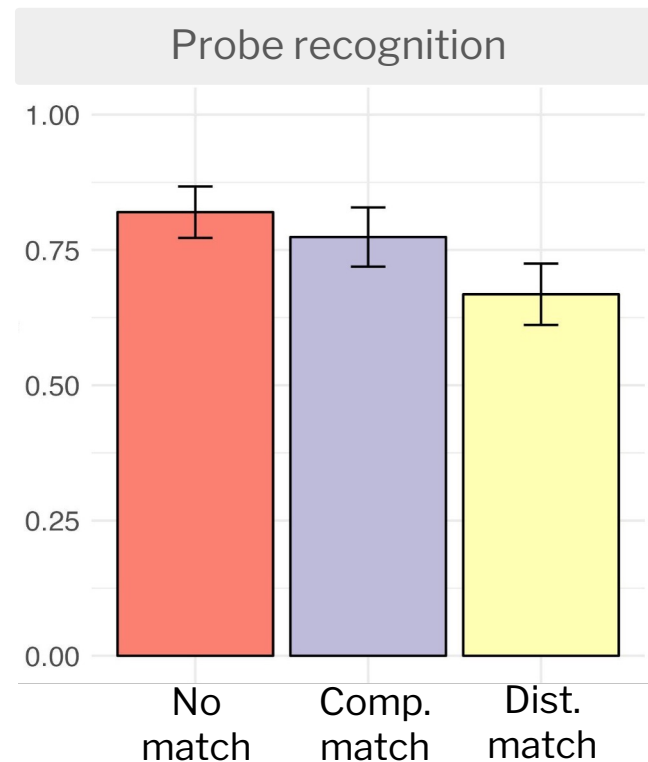
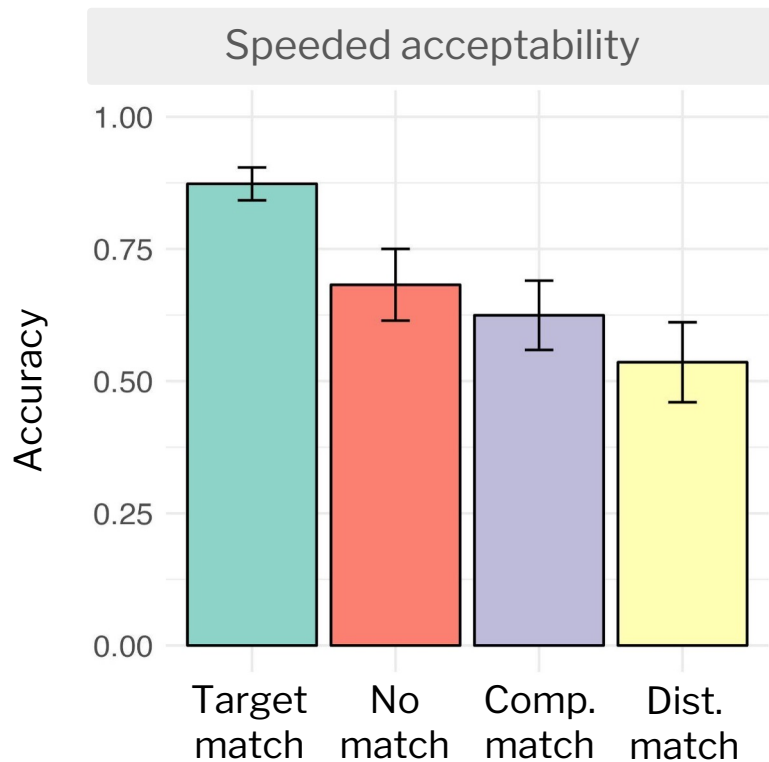
No reliable difference between

*Composite* and *No match*

Est. -0.17, Est. Error 0.26, CrI 95% [-0.66, 0.36]



## Discussion





## Discussion

Surface form is a precise cue in probe recognition.

Participants may rely on their recollection of surface morphology to complete the task.

### *Distractor match*

ha-ohed**et**    šel ha-koxav**ot**    tamid be-haxanot  
the-fan.**F.SG**    of    the-star.**F.PL**    always in-prep.

### *Composite match*

ha-ohed**et**    šel ha-koxav**im**    tamid be-haxanot  
the-fan.**F.SG**    of    the-star.**M.PL**    always in-prep.

Probe

ohad**ot**  
fan.**F.PL**

## Discussion

Surface form is **not** a precise cue in judging the acceptability of an agreement dependency.

Participants must rely on an abstract featural representation.

	N	V past	V pres.	V future
<b>.M.SG</b>	∅	∅	∅	∅
<b>.F.SG</b>	-a, -et, -at, ∅	-a	-a, -et, -at	ti-
<b>.M.PL</b>	-im, ot	-o	-im	-o
<b>.F.PL</b>	-ot, -iot, -im	-o	-ot	-o

*ha-šolxan***ot**    \**noflot*  
the-table.**M.PL** fall.**F.PL**

*ha-avan***im**    *noflot*  
the-rock.**F.PL** fall.**F.PL**

# Conclusions

**Composite attraction** → Feature migration may cause agreement illusions

**Agreement attraction in probe recognition**

**A full morphological match is more illusory**

- ↪ Potentially due to retrieval interference
- ↪ And in tasks that highlight surface form (Probe recognition)

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