

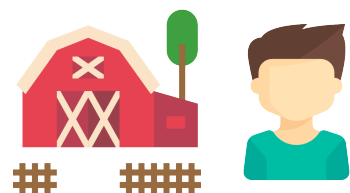
THE ROLE OF AFFIXES IN THE VISUAL IDENTIFICATION OF WORDS AND NONWORDS

Mara De Rosa & Davide Crepaldi

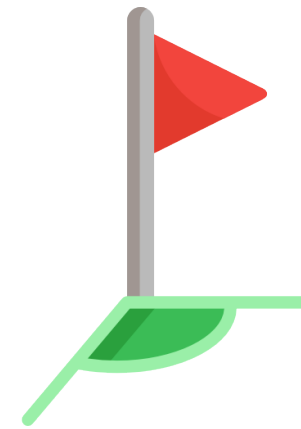
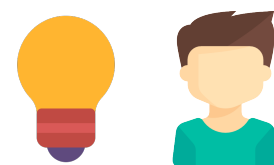
International School for Advanced Studies (SISSA), Trieste, Italy



FARMER



BULBER



CORNER

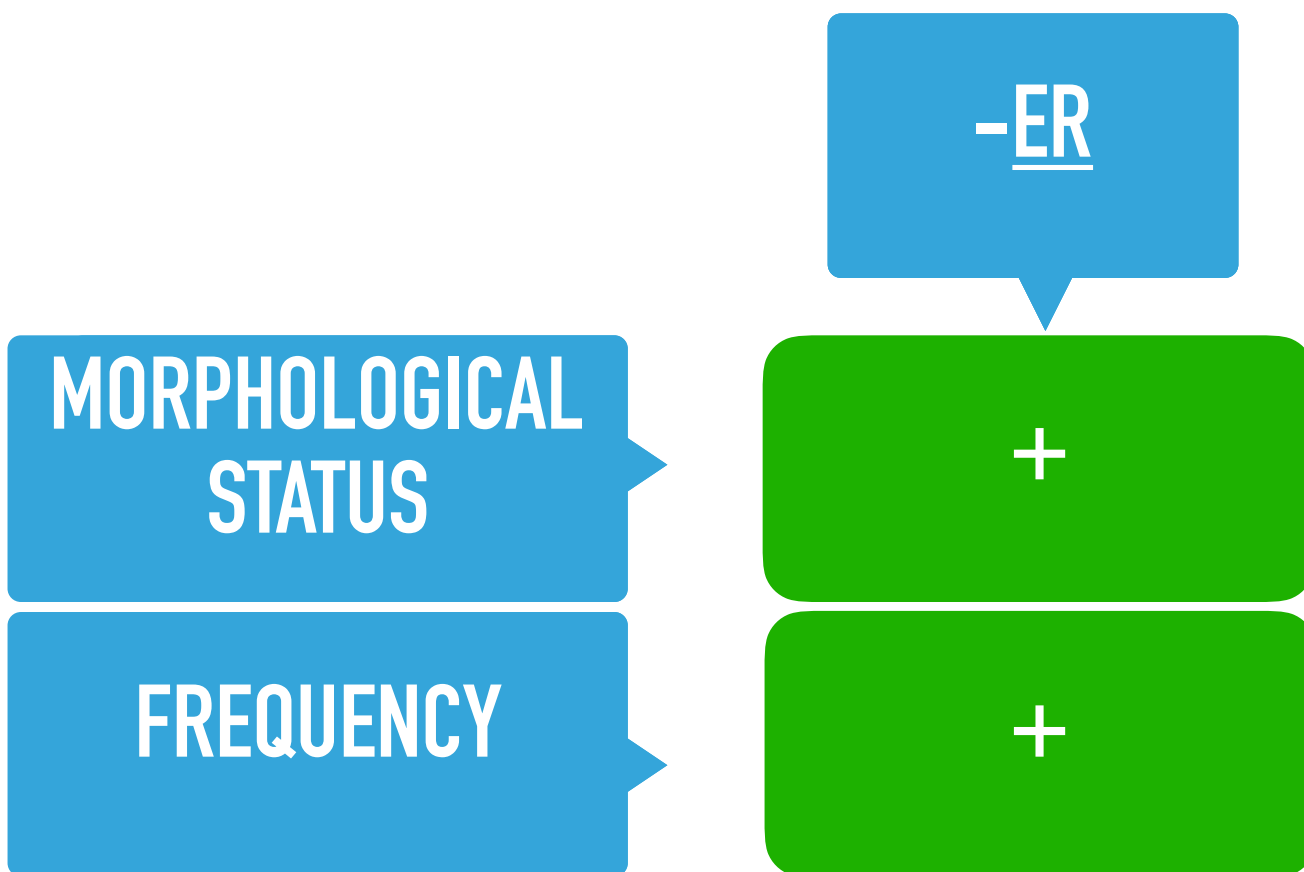


CASHEW



BULBEW







**COULD AFFIXES BE
RECOGNIZED ON THE BASIS OF
LETTER CO-OCCURRENCE
REGULARITIES?**

	- <u>ER</u>	- <u>LE</u>	- <u>EW</u>
MORPHOLOGICAL STATUS	+	-	-
FREQUENCY	+	+	-

TASK 1: MASKED PRIMING LEXICAL DECISION

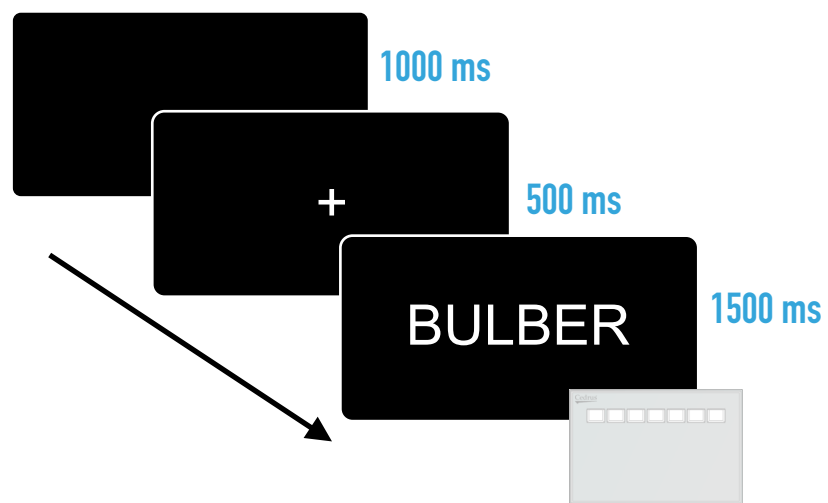
TARGET	CONDITION	RELATEDNESS	
BULB	MORPHOLOGICAL	BULB-ER	VERB-ER
	ORTHOGRAPHIC HIGH FREQUENCY	BULB-LE	VERB-LE
	ORTHOGRAPHIC LOW FREQUENCY	BULB-EW	VERB-EW

TASK 1: MASKED PRIMING LEXICAL DECISION

TARGET	CONDITION	RELATEDNESS	
BULB	MORPHOLOGICAL	BULB-ER	VERB-ER
	ORTHOGRAPHIC HIGH FREQUENCY	BULB-LE	VERB-LE
	ORTHOGRAPHIC LOW FREQUENCY	BULB-EW	VERB-EW

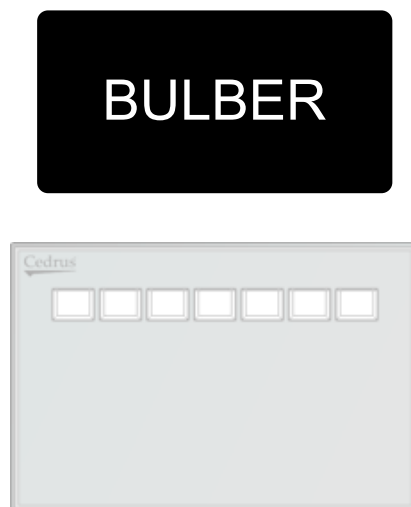
TASK 1: MASKED PRIMING LEXICAL DECISION

TASK 2: UNPRIMED LEXICAL DECISION



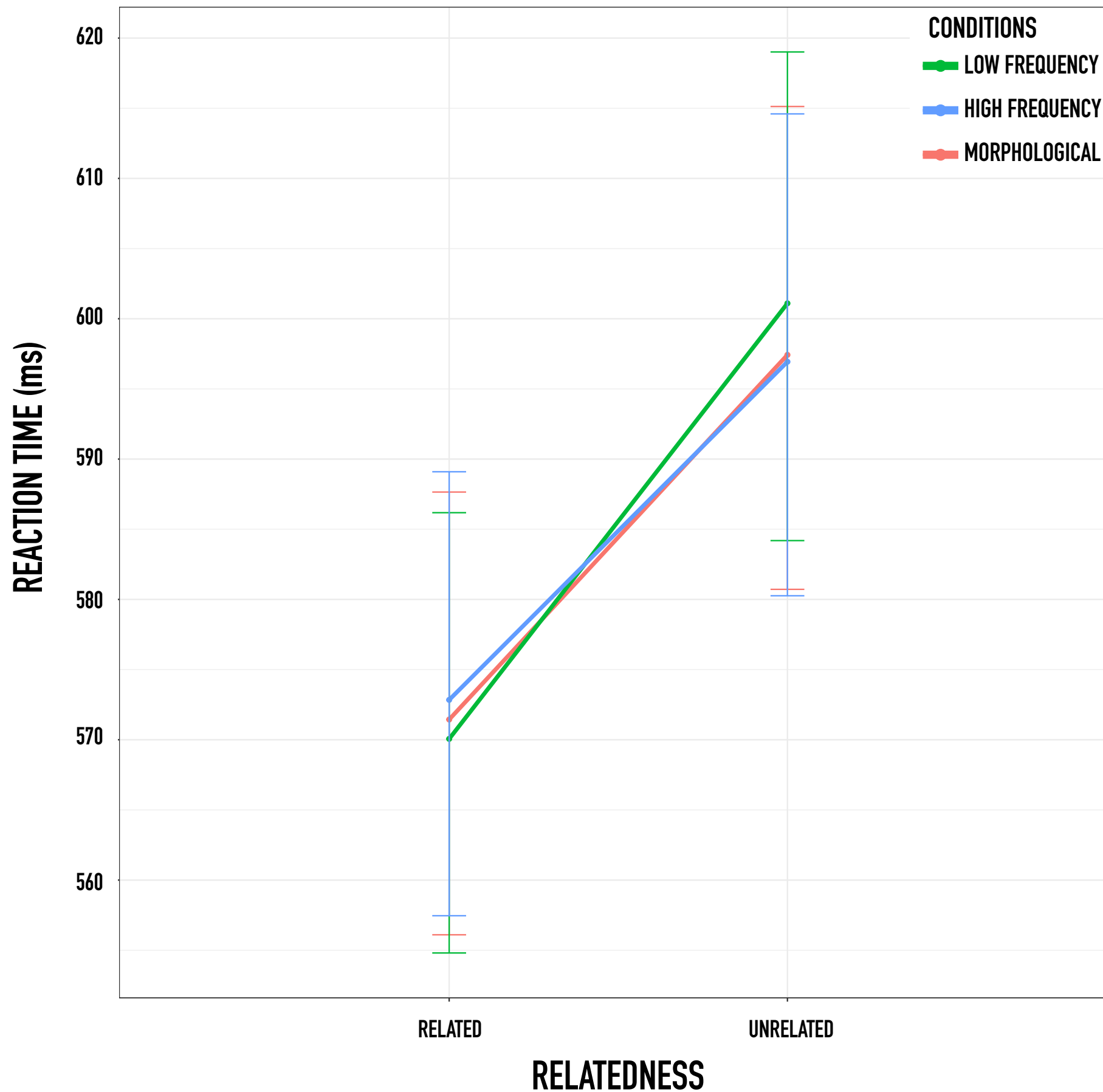
IMPLICIT “WORD-LIKENESS” INDEX

TASK 3: RATING (1 to 7 LIKERT SCALE)



EXPLICIT “WORD-LIKENESS” INDEX

$$1/RT \sim \text{CONDITION} * \text{RELATEDNESS} + \dots + (1|\text{ITEM}) + (1|\text{SUBJECT})$$



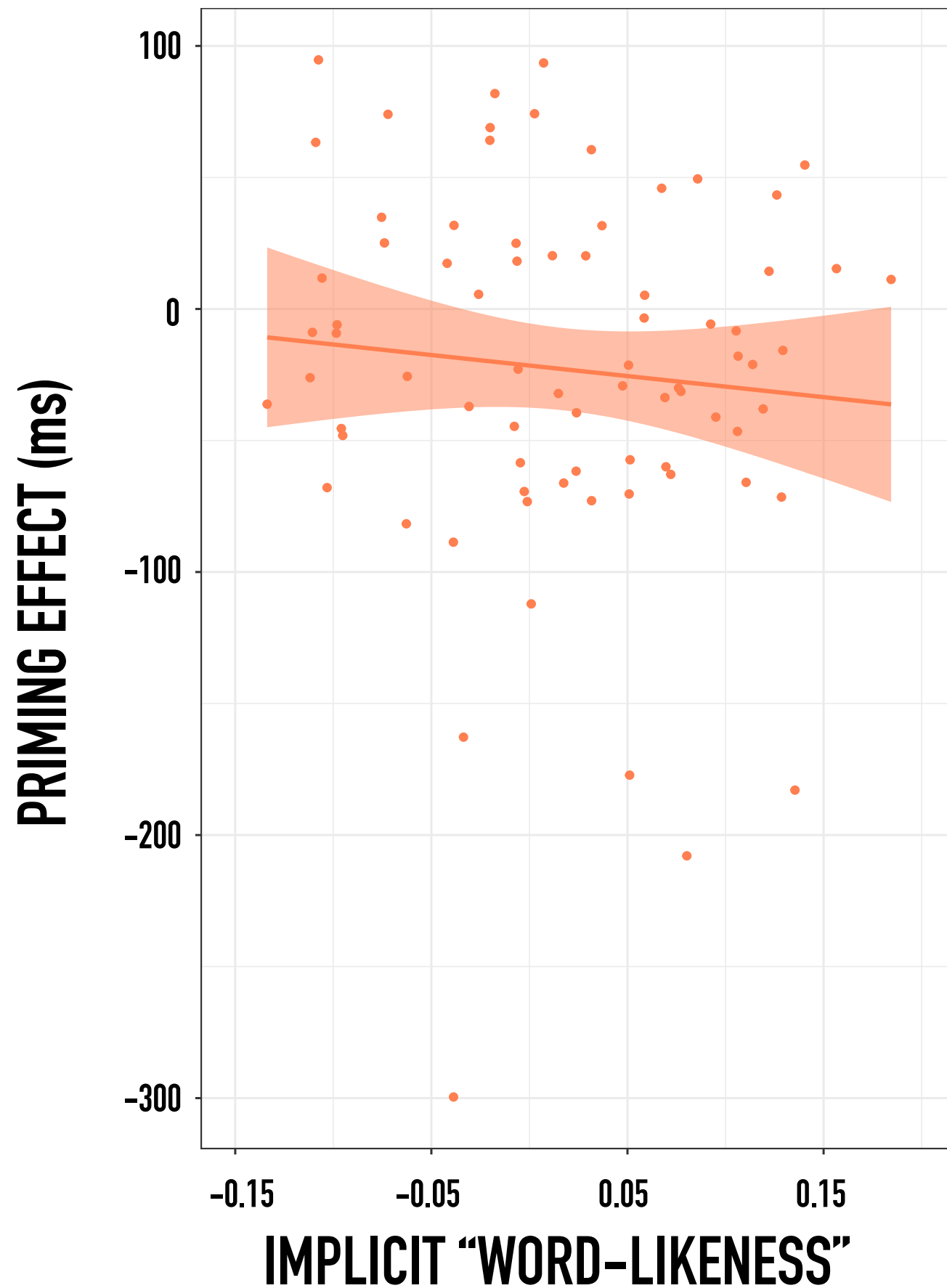
RELATEDNESS:
 $F=152.294, p<0.001$

CONDITION:
 $F=0.072, p=0.93$

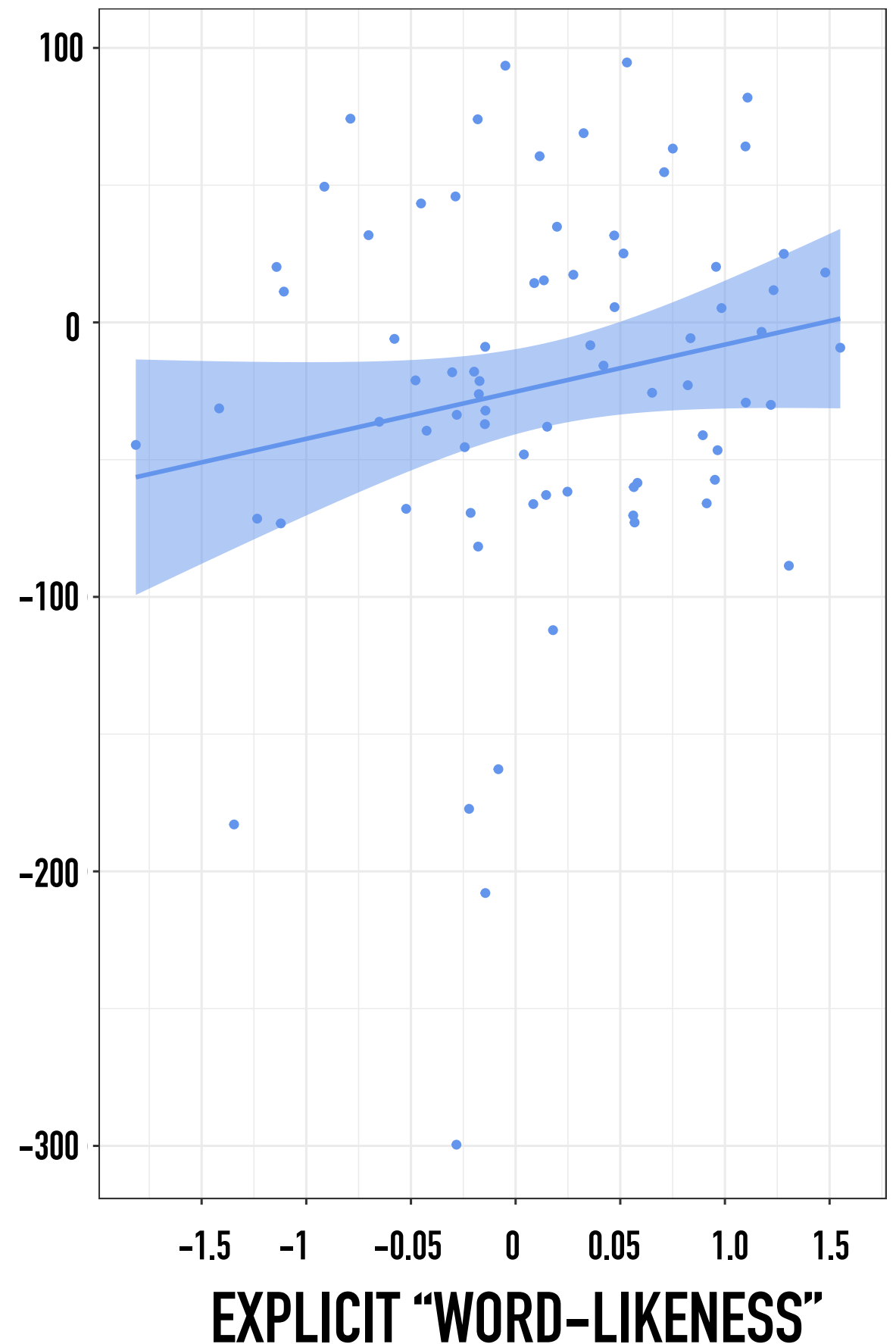
CONDITION * RELATEDNESS:
 $F=0.877, p=0.41$

$R^2 = 0.51$

$t = 1.64, df = 75, p = 0.10, r = 0.18$



$t = -0.78, df = 75, p = 0.43, r = -0.09$



**NONWORDS ELICIT
ROBUST PRIMING**

```
graph LR; A[NONWORDS ELICIT ROBUST PRIMING] --- B[CLUSTER FREQUENCY]; A --- C[SEMANTIC INTERPRETABILITY]; A --- D[MORPHOLOGICAL STATUS];
```

A diagram with a central yellow box on the left containing the text 'NONWORDS ELICIT ROBUST PRIMING'. To the right of this box are three blue rounded rectangular boxes stacked vertically. Red lines connect the yellow box to each of the blue boxes: a curved line to the top box, a straight line to the middle box, and a curved line to the bottom box.

CLUSTER FREQUENCY

SEMANTIC INTERPRETABILITY

MORPHOLOGICAL STATUS

**NONWORDS ELICIT
ROBUST PRIMING**

```
graph LR; A[NONWORDS ELICIT ROBUST PRIMING] --- B[CLUSTER FREQUENCY]; A --- C[SEMANTIC INTERPRETABILITY]; A --- D[MORPHOLOGICAL STATUS];
```

The diagram features a central yellow box on the left with the text 'NONWORDS ELICIT ROBUST PRIMING'. To its right are three rounded rectangular boxes stacked vertically. The top two boxes are light blue and contain the text 'CLUSTER FREQUENCY' and 'SEMANTIC INTERPRETABILITY' respectively. The bottom box is red and contains the text 'MORPHOLOGICAL STATUS'. Three hand-drawn red lines connect the central yellow box to each of the three boxes on the right: one from the top right corner to the top blue box, one from the middle right edge to the middle blue box, and one from the bottom right corner to the red box.

CLUSTER FREQUENCY

SEMANTIC INTERPRETABILITY

MORPHOLOGICAL STATUS



**DO AFFIXES
PLAY THE SAME ROLE
IN WORD AND NONWORD
PROCESSING?**

TRANSPARENT

OPAQUE

ORTHOGRAPHIC

MORPHOLOGICAL

NON-MORPHOLOGICAL

FARMER

CORNER

CASHEW

BULBER

MILKEW

SEMANTICS

+

-

-

-

-

MORPHOLOGY

+

+

-

+

-

ORTHOGRAPHY

+

+

+

+

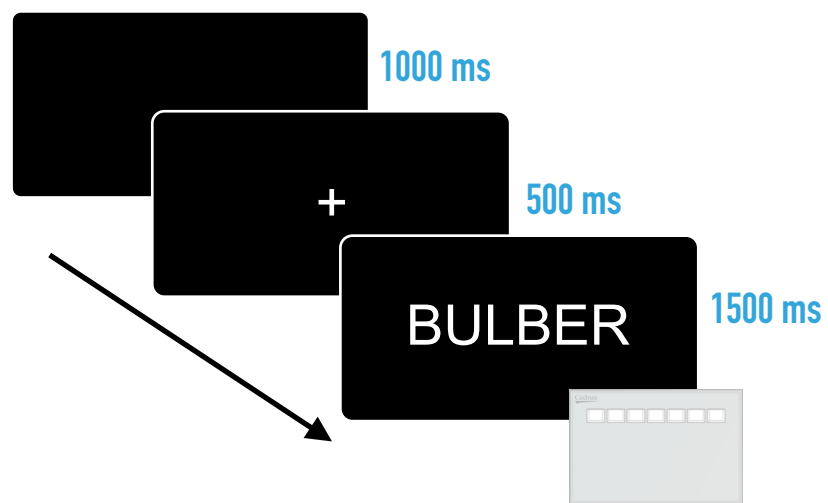
+

WORD PRIMES

NONWORD PRIMES

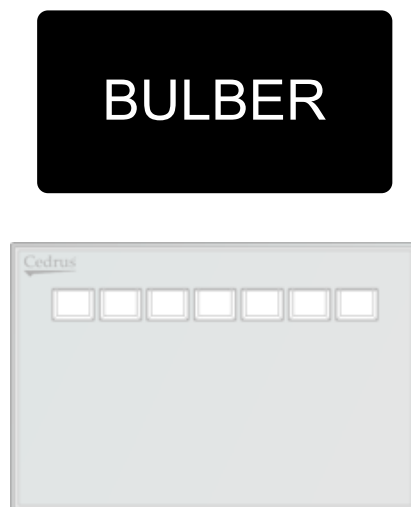
TASK 1: MASKED PRIMING LEXICAL DECISION

TASK 2: UNPRIMED LEXICAL DECISION



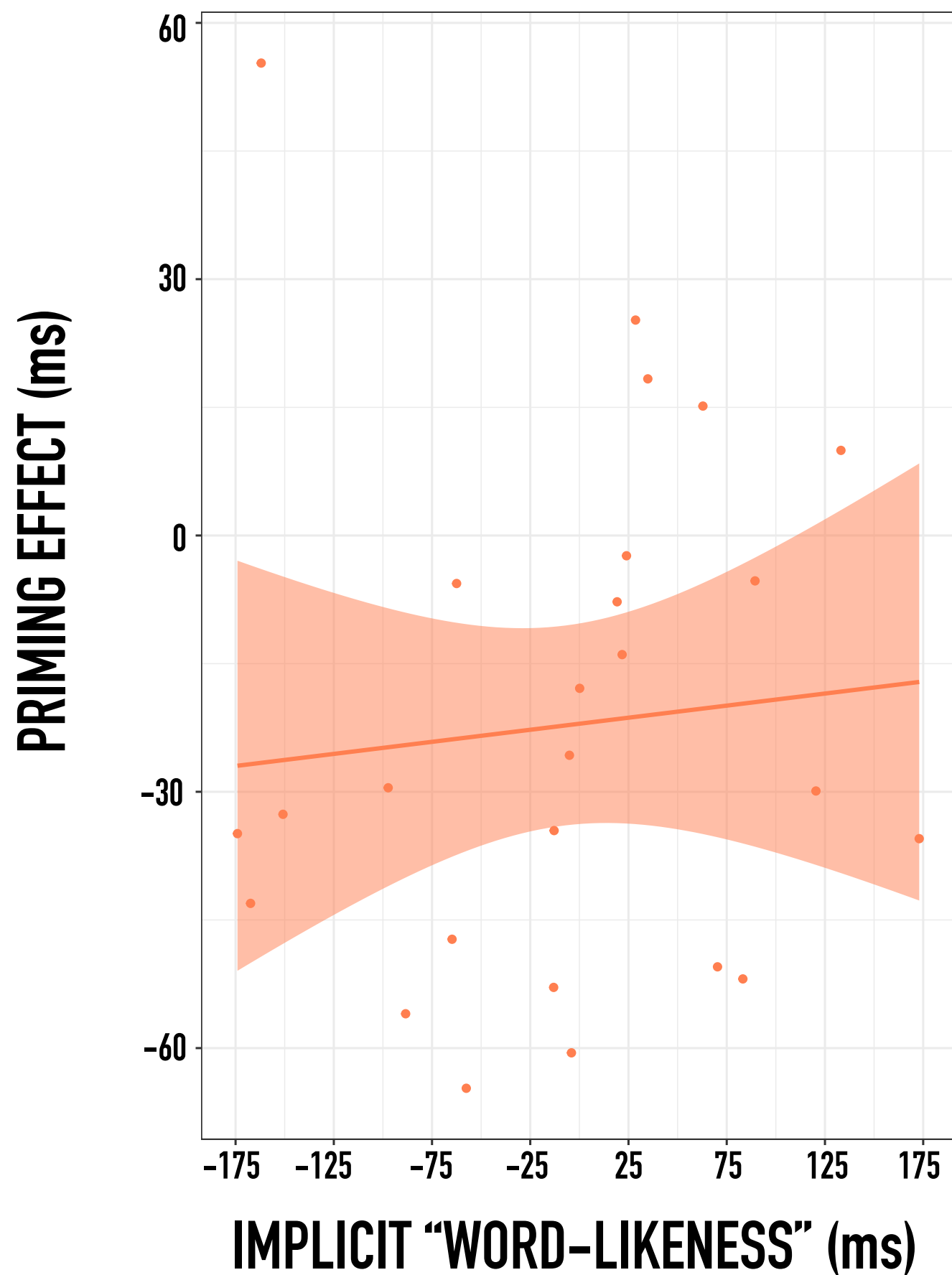
IMPLICIT “WORD-LIKENESS” INDEX

TASK 3: RATING (1 to 7 LIKERT SCALE)

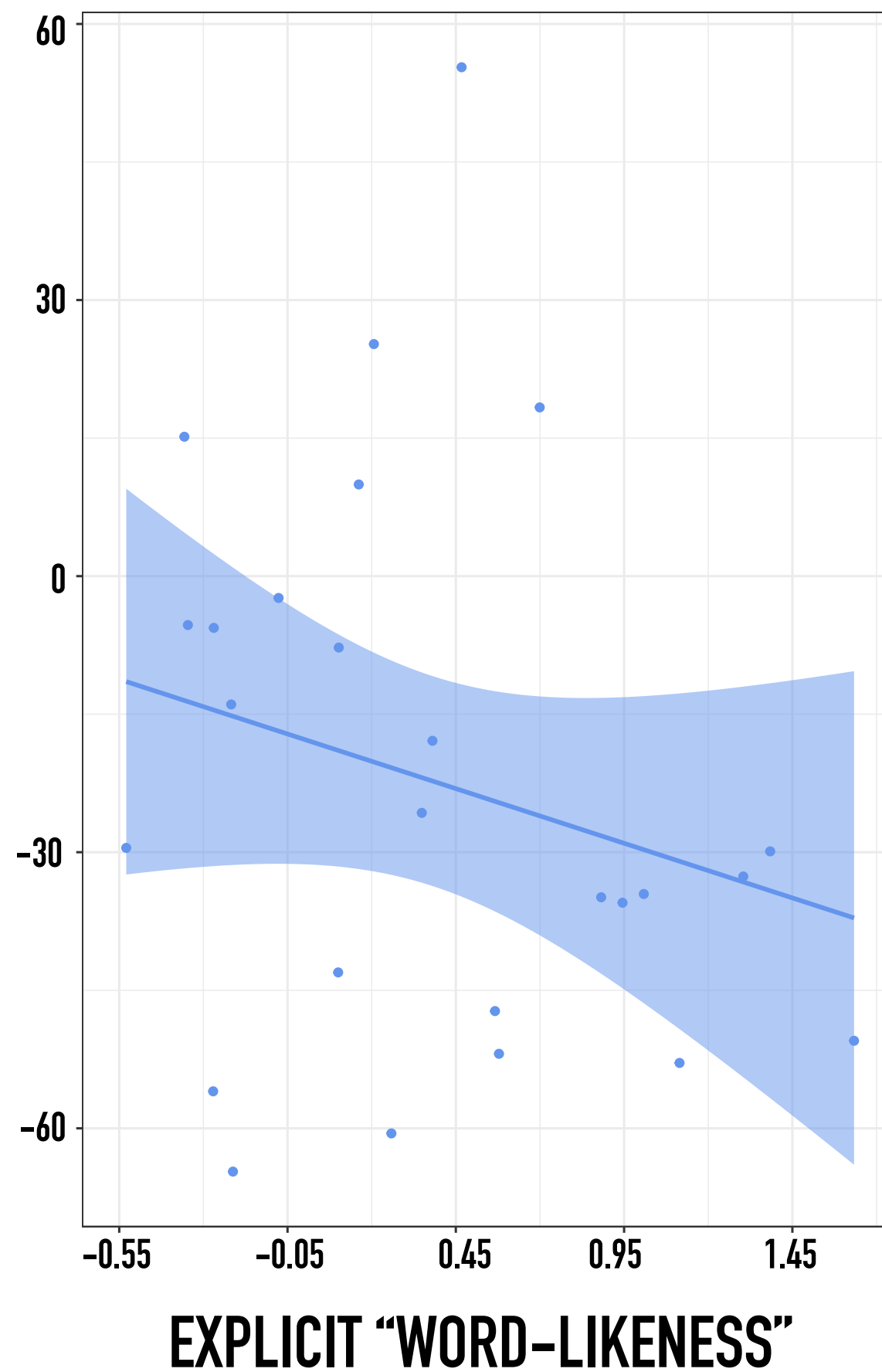


EXPLICIT “WORD-LIKENESS” INDEX

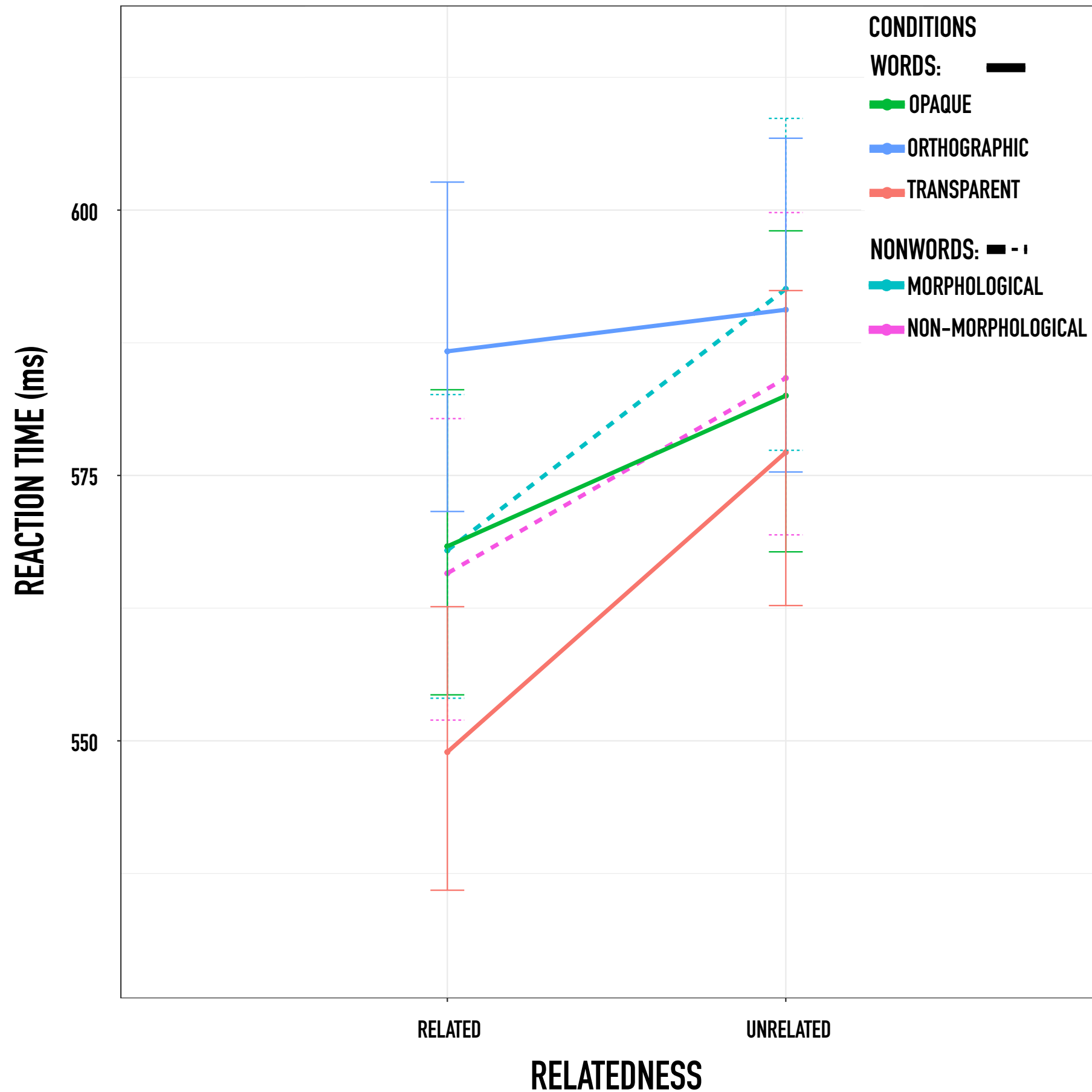
$t = 0.43$, $df = 24$, $p = 0.66$, $r = 0.08$



$t = -1.20$, $df = 24$, $p = 0.24$, $r = -0.23$



$$1/RT \sim \text{CONDITION} * \text{RELATEDNESS} + \dots + (1|\text{ITEM}) + (1|\text{SUBJECT})$$

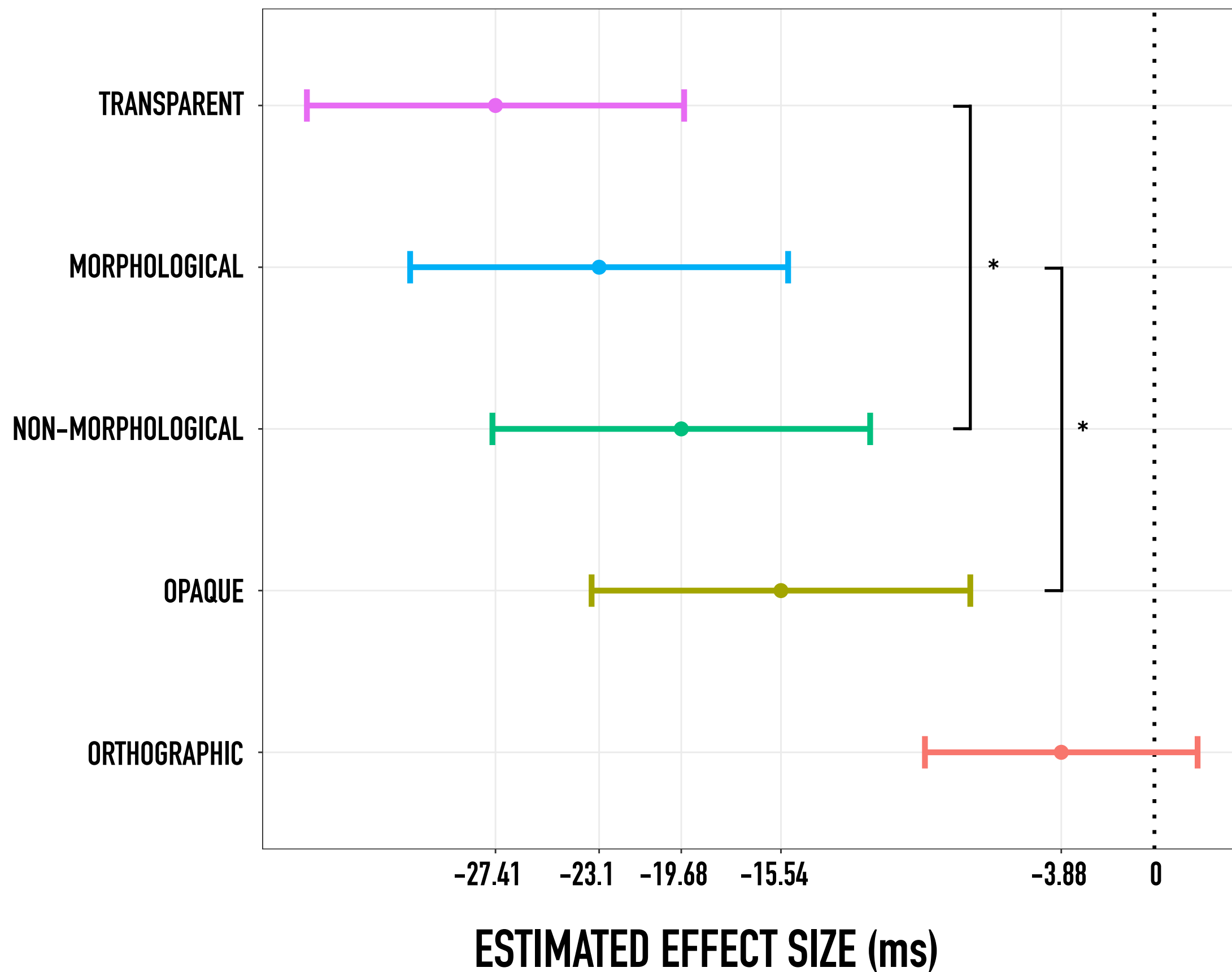


RELATEDNESS:
F=261.58, p<0.001

CONDITION:
F=2.90, p=0.02

CONDITION * RELATEDNESS:
F=15.31 p<0.001

R² = 0.50



**FORMAL FEATURES OF AFFIXES CANNOT ACCOUNT FOR
MORPHO-ORTHOGRAPHIC DECOMPOSITION**

(EXPERIMENT 1)

NO EFFECT OF NONWORD INTERPRETABILITY

(EXPERIMENT 1 & 2)

**NO CLEAR DISTINCTION BETWEEN WORD AND NONWORD
PROCESSING**

(EXPERIMENT 2)

**THE PRESENCE OF AFFIXES DOES NOT ENTAIL STRONGER
FACILITATION**

(EXPERIMENT 1 & 2)



**ORTHOGRAPHIC PRIME-TARGET PAIRS
SYSTEMATICALLY FAIL TO ELICIT FACILITATION.
WHY?**

THE ROLE OF AFFIXES IN THE VISUAL IDENTIFICATION OF WORDS AND NONWORDS

Mara De Rosa & Davide Crepaldi

International School for Advanced Studies (SISSA), Trieste, Italy

mderosa@sissa.it



European Research Council
Established by the European Commission