**Supplemental Materials**

**Analyses of Encoding Latencies**

We tested whether encoding latencies in each experiment differed as functions of Pair Type and Encoding Group (see Table S1). Starting with Experiment 1A, a 3(Pair Type: Forward vs. Mediated vs. Unrelated) × 2 (Encoding Group: JOL vs. No-JOL) mixed ANOVA revelated a significant effect of Pair Type, *F*(2, 246) = 3.30, *MSE* = 2345540, *ηp*2 = .03, *p*BIC = .96). Collapsed across Encoding Groups, response latencies were highest for mediated pairs (4267.24), followed by unrelated pairs (4170.15) and forward pairs (3798.32). Follow-up testing, however, revealed that all comparisons differed significantly (*t*s ≥ 2.30, *d*s ≥ 0.13, *p*BICs ≤ .45), except for the comparison between mediated and unrelated pairs, which was non-significant (*t*(124) < 1, *SEM* = 228.44, *p* = .67, *p*BIC = .91). Additionally, this model yielded a significant main effect of Encoding Group, as collapsed across Pair Types, encoding latencies were longer for participants in the JOL group relative to the No-JOL control group (5048.47 vs. 3138.98, respectively; *F*(124) = 16.52, *MSE* = 20239582, *ηp*2 < .01, *p*BIC < .01). However, the Pair Type × Encoding Group interaction was non-significant, *F*(2, 246) < 1, *MSE* = 2345540, *p* = .54, *p*BIC = .89.

Next, the same model design was used to test for encoding latency differences in Experiment 1B. Like Experiment 1A, this model returned a significant Pair Type main effect, *F*(2, 226) = 20.68, *MSE* = 1636226, *ηp*2 = .01, *p*BIC = .01. Across Encoding Groups, response latencies were highest for unrelated pairs (5023.73), followed by mediated pairs (4870.18) and forward pairs (4021.64). All comparisons differed significantly (*t*s ≥ 4.73, *d*s ≥ 0.32, *p*BICs < .001), except for the comparison between mediated and unrelated pairs, (*t*(114) = 1.05, *SEM* = 148.06, *p* = .30, *p*BIC = .86). However, the main effect of Pair Type and interaction were non-significant (*F*s ≤ 2.72, *p*s ≥ .10, *p*BICs ≥ .73).

We then tested for differences in encoding latencies in Experiment 2A using the same ANOVA design. Consistent with the previous experiments, this model revealed a significant main effect of Pair Type, *F*(2, 222) = 6.69, *MSE* = 1435686, *ηp*2 = .01, *p*BIC = .28. Collapsed across Encoding Groups, encoding latencies were highest for unrelated pairs (3740.99), followed by mediated pairs (3619.96) and forward pairs (3185.97). All comparisons significantly differed (*t*s ≤ 2.76, *d*s ≥ 0.16, *p*BICs < .001), except for the comparison between mediated and unrelated pair types, (*t*(113) < 1, *SEM* = 123.95, *p* = .33, *p*BIC = .87. Additionally, this model revealed collapsed across Pair Types, JOL participants had significantly higher encoding latencies compared to participants in the No-JOL control group (4907.08 vs. 2099.34; *F*(1, 111) = 44.18, *MSE* = 15121259, *ηp*2 = .28, *p*BIC < .001). The interaction, however, was non-significant, *F*(2, 222) < 1, *MSE* = 1435686, *p* = .52, *p*BIC = .99.

Finally, we tested for encoding latency differences in Experiment 2B. This model yielded a significant main effect of Pair Type, *F*(2, 234) = 4.40, *MSE* = 1653112 *ηp*2 = .04, *p*BIC = .93. Across Encoding Groups, response latencies were highest for mediated pairs (4348.23), followed by unrelated pairs (4212.97) and forward pairs (3867.82). Follow-up testing revealed a significant difference between mediated and forward pairs, *t*(118) = 3.06, *SEM* = 158.83, *d* = 0.16, *p*BIC = .11, and a marginal difference was detected between forward and unrelated pairs, *t*(118) = 1.80, *SEM* = 193.52, *d* = 0.12, *p* = .07, *p*BIC = .68. However, the difference between mediated and unrelated pairs was non-significant, *t*(118) < 1, *SEM* = 148.28, *p* = .36, *p*BIC = .88. Additionally, this model indicated a significant main effect of Encoding Group, *F*(1, 117) = 18.81, *MSE* = 19831123 *ηp*2 = .14, *p*BIC < .001, as across Pair Types, JOL participants had higher encoding latencies relative to the No-JOL control group (5156.78 vs. 2112.05). However, the interaction was again non-significant, *F*(2, 234) < 1, *MSE* = 1653112, *p* = .66, *p*BIC = .55.

**Cross-Experimental Cued-Recall Analyses**

In this section, we report a set of cross-experimental analyses which tested for differences in JOL reactivity effects between single and double mediated pairs in Experiments 1A/2A and backward single and double-mediated pairs in Experiments 1B/2B. For completeness, each model also tested for changes in reactivity patterns between forward and unrelated pairs as functions of experiment.

**Experiments 1A and 2A**

We tested for changes in JOL reactivity patterns between experiments 1A and 2A using a 2(Experiment: 1A vs. 2A) × 2(Encoding Group: JOL vs. No-JOL) × 2(Pair Type: Forward vs. Mediated vs. Unrelated) mixed ANOVA with repeated measures over the last factor. Consistent with the single experiment analyses, this model yielded significant main effects of Pair Type and Encoding Group (*F*s ≥ 25.84, *ηp*2s ≥ .10, *p*BICs < .001). The Experiment main effect, however, was non-significant, *F*(1, 234) = 2.25, *MSE* = 866.33, *p* = .14, *p*BIC = .83. This model also yielded a significant Encoding Group × Pair Type interaction, which confirmed reactivity patterns remained consistent across Experiments (*F*(2, 468) = 28.76, *MSE* = 119.67, *ηp*2 = .11, *p*BIC < .01). However, the Encoding Group × Experiment interaction was non-significant, *F*(1, 234) < 1, *MSE* = 866.33, *p* = .51, *p*BIC = .94. Finally, the Pair Type × Experiment interaction was significant (*F*(2, 468) = 7.46, *MSE* = 119.67, *ηp*2 = .03, *p*BIC = .85). However, these interaction patterns were not qualified by a significant Encoding Group × Pair Type × Experiment interaction (*F*(2, 468) < 1, *MSE* = 119.67, *p* = .77, *p*BIC = .99), which indicated that JOL reactivity patterns for each pair type stayed consistent across experiments.

**Experiments 1B and 2B**

Next, we tested for cross-experimental differences in JOL reactivity patterns when backward mediated pairs were used. Using the same ANOVA model, this analysis revealed significant main effects of Pair Type and Encoding Group (*F*s ≥ 16.59, *ηp*2s ≥ .07, *p*BICs < .01). However, the main effect of Experiment did not reach significance, *F*(1, 230) = 2.83, *MSE* = 770.70, *p* = .09, *p*BIC = .79. Like the previous analysis, this model also yielded significant Experiment × Direction and Encoding Group × Direction interactions (*F*s ≥ 10.66, *ηp*2s ≥ .04, *p*BICs < .55). However, the Encoding Group × Experiment interaction was non-significant (*F*(1, 230) < 1, *MSE* = 770.70, *p* = .64, *p*BIC = .92, and, like the previous analysis, the three-way interaction did not reach conventional significance (*F*(2, 460) = 1, *MSE* = 117.43, *p* = .06, *p*BIC = .98). Taken together, JOL reactivity patterns observed on forward, mediated, and unrelated pairs remained consistent across experiments.

Table S1.

*Mean Encoding Latencies as Functions of Pair Type and Encoding Group in All Experiments*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experiment | Encoding Group | Forward | Mediated | Unrelated |
| Ex. 1A | JOL | 4643.36 | 5288.94 | 5213.10 |
|  | Read | 3002.39 | 3297.69 | 3180.15 |
| Ex. 1B | JOL | 3491.86 | 4469.57 | 4731.67 |
|  | Read | 2917.33 | 3552.15 | 3411.35 |
| Ex. 2A | JOL | 4509.76 | 5113.74 | 5097.74 |
|  | Read | 1838.54 | 2099.48 | 2360.01 |
| Ex. 2B | JOL | 4794.80 | 5394.68 | 5280.86 |
|  | Read | 2925.13 | 3284.04 | 3126.98 |

*Note*: Cells denote encoding latencies in ms. Mediated pairs in Experiments 1A/1B were mediated through one concept. Mediated pairs in Experiments 2A/2B were mediated through two concepts. “A” experiments presented mediated pairs in the forward direction. “B” experiments presented mediated pairs in the backward direction.