**Supplementary Analyses Document**

Supplementary Analysis 1: Effect of Irrelevant Speech on Serial Recall (Phase 1)

To investigate whether susceptibility to disruption differed as a function of which set was to-be-ignored, a 3 (sound condition: quiet vs. meaningless speech vs. meaningful speech) × 2 (organisation: blocked vs. random presentation) × 4 (ignored set: Set 1A vs. Set 1B vs. Set 2A vs. Set 2B) mixed ANOVA was undertaken. This revealed a main effect of sound condition, *F*(2, 224) = 134.387, *MSE* = 0.009, *p* < .001, ηp2 = .545, but no main effect of organisation, *F*(1, 112) = 0.762, *MSE* = 0.065, *p* = .385, ηp2 = .007, nor of ignored set, *F*(3, 112) = 0.425, *MSE* = 0.065, *p* = .736, ηp2 = .011. In addition, no significant effects emerged for the sound condition × organisation interaction, *F*(2, 224) = 1.813, *MSE* = 0.009, *p* = .166, ηp2 = .016, the sound condition × ignored set interaction, *F*(6, 224) = 1.441, *MSE* = 0.009, *p* = .202, ηp2 = .037, or the organisation × ignored set interaction, *F*(3, 112) = 0.743, *MSE* = 0.065, *p* = .529, ηp2 = .020. Further, the sound condition × organisation × ignored set interaction missed conventional levels of significance, *F*(6, 224) = 2.080, *MSE* = 0.009, *p* = .057, ηp2 = .053. Pairwise comparisons for the main effect of sound condition revealed a significant difference between quiet and meaningless speech, *p* < .001, 95% CI [.149, .195], and between quiet and meaningful speech, *p* < .001, 95% CI [.148, .200], but not between meaningless and meaningful speech, *p* = .875, 95% CI [-.021, .025].

Supplementary Analysis 2: Comparison of Production Frequencies of High Output-Dominant Category-Exemplars and Category-Exemplars of Different Versions and Sets (Phase 2)

For the category-exemplar production trials for which participants had been primed with a set of category-exemplars for the target category, we also compared the mean production frequencies for the highest output-dominance exemplars with the mean production frequencies for items assigned to Version A and Version B of each set. We collapsed the mean production scores across organisation and priming status. For Set 1, the mean production frequency of the high output-dominant items was .522 (*SE* = .0124) and for Set 2 it was .529 (*SE* = .011). The mean production frequency of category-exemplars from Set 1A was .141 (*SE* = .007) and for Set 1B it was .143 (*SE* = .011) and they were both significantly lower than the production frequencies for the Set 1 high output-dominant responses (Set 1A, *t*(59) = 25.663, *p* < .001, *dz* = 3.313, BF10 = 2.300 × 10+30; Set 1B, *t*(59) = 19.116, *p* < .001, *dz* = 2.468, BF10 = 5.756 × 10+23). The mean production frequency of category-exemplars from Set 2A was .165 (*SE* = .011) and for Set 2B it was .133 (*SE* = .008), which was significantly less than the production frequency of high output-dominant responses from Set 2 (Set 2A, *t*(59) = 21.395, *p* < .001, *dz* = 2.762, BF10 = 1.713 × 10+26; Set 2B, *t*(59) = 27.946, *p* < .001, *dz* = 3.608, BF01 = 2.198 × 10+32). Further, the mean production frequency for Set 1A responses was not significantly different from that of Set 1B responses, *t*(59) = 0.153, *p* = .879, *dz* = 0.020, BF01 = 7.001, and the mean production frequency for Set 2A responses was not significantly different from that of Set 2B responses, *t*(59) = 1.960, *p* = .055, *dz* = 0.253, BF01 = 1.188.

Further, the production frequency for Set 1A responses was not significantly different from that of Set 2A responses, *t*(118) = 1.822, *p* = .071, *d* = 0.333, BF01 = 1.418, or Set 2B responses, *t*(118) = 0.737, *p* = .462, *d* = 0.135, BF01 = 5.134. The production frequency for Set 1B responses was not significantly different from that of Set 2A responses, *t*(118) = 1.360, *p* = .176, *d* = 0.248, BF01 = 1.819, or Set 2B responses, *t*(118) = 1.360, *p* = .461, *d* = 0.135, BF01 = 5.728.

Supplementary Analysis 3: Further Analyses of Semantic Priming as a Function of Different Versions and Sets and Applying Different Baselines (Phase 2)

Having established that there were no systematic differences in production frequencies between the different sets and versions of category-exemplars deployed in the study, we moved on to investigate whether semantic priming had occurred. The most straightforward way to determine priming is to investigate whether the production frequencies of Version A responses, differed from those of Version B whereby A and B responses are both drawn from the same (primed) semantic category. For example, recall that the category-exemplars in Set 1B were drawn from the same semantic category as the Set 1A category-exemplars—that for other participants served as distractors—but had not previously been heard by the participants as distractors in the context of the serial recall task.

To explore whether priming occurred regardless of which Set (1 vs. 2) and Version (A vs. B) was assigned to act as primes, a 2 (priming status: primed vs. unprimed) × 2 (organisation: blocked vs. random) ×4 (Set and Version: Set 1A vs. Set 1B vs. Set 2A vs. Set 2B) mixed analysis of variance was run. There was no between-participants main effect of set, *F*(3, 112) = 1.450, *MSE* = .003, *p* = .232, ηp2 = .037, nor any interaction with priming status, *F*(3, 112) = 1.905, *MSE* = .006, *p* = .133, ηp2 = .049, or organisation, *F*(3, 112) = 1.195, *MSE* = .003, *p* = .315, ηp2 = .031. The three-way interaction between priming status, organisation and set was also not significant, *F*(3, 112) = 0.560, *MSE* = 0.006, *p* = .642, ηp2 = .015. Thus, the priming effect observed was consistent across the different sets and versions deployed within the study (see Table 2).

Table 1. Mean proportion of primed and unprimed category-exemplars produced as a function of organisation, set and version in the experiment. Standard deviations are presented in curved parentheses and standard errors of the mean are presented in square brackets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Set 1 Version A | | Set 1 Version B | | Set 2 Version A | | Set 2 Version B | |
|  | Primed | Unprimed | Primed | Unprimed | Primed | Unprimed | Primed | Unprimed |
| Blocked  Present-ation | .183 (.066)  [.017] | .118 (.054)  [.014] | .221 (.135)  [.035] | .115 (.033)  [.009] | .234 (.128)  [.033] | .121  (.033)  [.009] | .172 (.074)  [.019] | .117 (.066)  [.017] |
| Random  Present-ation | .142 (.050)  [.013] | .120 (.026)  [.007] | .132 (.058)  [.015] | .104 (.034)  [.009] | .151 (.056)  [.014] | .153 (.040)  [.010] | .121 (.053)  [.014] | .122 (.033)  [.009] |

Another way of determining priming that is *independent* of computing priming based on the proportion of unprimed and primed category-exemplars *within* a category, is to compare the production frequencies of primed category-exemplars with a matched set of category-exemplars from different categories, whereby neither the category, nor exemplars, were previously experienced as distractor materials (henceforth called “non-primed”; thus, the comparison is *between* categories). For example, if a participant ignored category-exemplars from Set 1A, the production frequency of those category-exemplars is compared against the production frequency of category-exemplars from Set 2A and Set 2B.

A 2 (organisation: blocked vs. random presentation) × 3 (priming status: primed vs. non-primed control Version A, control Version B) mixed analysis of variance revealed a main effect of priming status, *F*(2, 236) = 20.393, *MSE* = 0.004, *p* < .001, ηp2 = .147. There was also a main effect of organisation, *F*(1, 118) = 12.901, *MSE* = 0.004, *p* < .001, ηp2 = .099. Crucially, there was a significant priming status × organisation interaction, *F*(2, 236) = 11.313, *MSE* = .004, *p* < .001, ηp2 = .087. For the blocked presentation condition, simple effects analysis (LSD) revealed a significant difference between primed and non-primed Version A control, *p* < .001, 95% CI [.047, .094], Cohen’s *dz* = 0.647, BF10 = 3349.058, and between primed and non-primed Version B control, *p* < .001, 95% CI [.053, .104], Cohen’s *dz* = 0.642, BF10 = 2924.597, while no difference obtained between non-primed Version A and Version B control conditions, *p* = .301, 95% CI[-.007, .024], Cohen’s *dz* = 0.122, BF01 = 4.619. For the random presentation condition, there was no difference between primed and non-primed Version A control, *p* = .591, 95% CI[-.017, .030], Cohen’s *dz* = 0.091, BF01 = 5.593, or non-primed Version B control, *p* = .259, 95% CI[-.011, .040], Cohen’s *dz* = 0.217, BF01 = 1.888, and no difference between non-primed Version A and B control conditions, *p* = .305, 95% CI[-.007, .024], Cohen’s *dz* = 0.149, BF01 = 3.773. Thus, with an arguably uncontaminated baseline, the results corroborate the view that semantic priming emerges only when distractors are organised by semantic category.

To determine whether the rate of production of unprimed items differed from that of non-primed control items a 2 (organisation: blocked vs. random presentation) × 3 (priming status: unprimed vs. non-primed control versions) mixed analysis of variance was undertaken. This failed to reveal a main effect of priming status, *F*(2, 236) = 1.922, *MSE* = .002, *p* = .149, ηp2 = .016, or organisation, *F*(1, 118) = 0.038, *MSE* = .002, *p* = .845, ηp2 = .000. Further, there was no priming status × organisation interaction, *F*(2, 236) = 0.495, *MSE* = .002, *p* = .610, ηp2 = .004. Thus, the production of unprimed exemplars from the category from which primed exemplars were drawn was not depressed as a function of the priming manipulation.

Given that the production rates of Version A and B did not differ significantly, these were combined into one variable in a subsequent analysis aiming to establish whether semantic priming differed as a function of which set (1 vs. 2) and version (A vs. B) were presented as primes. This involved running a 3 (priming status: primed vs. non-primed control) × 2 (organisation: blocked vs. random presentation) × 4 (set and Version: Set 1A vs. Set 1B vs. Set 2A vs. Set 2B) mixed analysis of variance. The main effect of set was not significant, *F*(3, 112) = 2.590, *MSE* = .004, *p* = .056, ηp2 = .065, and it did not interact with organisation, *F*(3, 112) = .577, *MSE* = .004, *p* = .632, ηp2 = .015, or priming status, *F*(3, 112) = 1.273, *MSE* = .004, *p* = .287, ηp2 = .033. Further, the three-way interaction between priming status, organisation and set was not significant, *F*(3, 112) = 0.520, *MSE* = .004, *p* = .669, ηp2 = .014.

The same analysis was undertaken using unprimed responses. This yielded no main effect of set, *F*(3, 112) = 0.611, *MSE* = .002, *p* = .609, p2 = .002, nor a set × organisation interaction, *F*(3, 112) = 0.846, *MSE* = .002, *p* = .472, p2 = .022. The three-way interaction was also non-significant, *F*(3, 112) = 1.125, *MSE* = .001, *p* = .342, p2 = .029. However, there was a two-way interaction between priming status and set, *F*(3, 112) = 6.589, *MSE* = 0.001, *p* < .001, p2 = .150. Simple effects analysis (LSD) revealed that the production frequency of unprimed items was significantly lower than non-primed control items when Set 1A, *p* = .009, 95% CI[-.038, -.006], Cohen’s *dz* = 0.452, BF10 = 2.585, and Set 1B, *p* = .011, CI[-.038, -.005], Cohen’s *dz* = 0.486, BF10 = 3.713, were primed. However, the production frequency of unprimed items was significantly higher than non-primed control items when Set 2B, *p* = .006, 95% CI[.007, .040], Cohen’s *dz* = 0.524, BF10 = 5.666, was primed and did not differ from the non-primed control when Set 2A was primed, *p* = .754, 95% CI[-.014, .019], Cohen’s *dz* = 0.058, BF01 = 4.907. Thus, there is no evidence that the production frequencies of unprimed items were diminished or suppressed as a consequence of sharing category-membership with primed items.

Table 2. Mean proportion of category-exemplars produced from control categories as a function of organisation, set and version in the experiment. Standard deviations are presented in curved parentheses and standard errors of the mean are presented in square brackets.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Set 1 Version A | Set 1 Version B | Set 2 Version A | Set 2 Version B |
| Blocked  Presentation | .128  (.055)  [.010] | .112  (.047)  [.008] | .137  (.045)  [.008] | .136  (.046)  [.008] |
| Random  Presentation | .124  (.040)  [.007] | .108  (.041)  [.007] | .136  (.035)  [.006] | .136  (.042)  [.008] |