**Summary and Discussion**

This study investigated the relationship between associative, semantic, and thematic word relations and their effect on participant judgments and recall performance through the testing of four hypotheses. In our first hypothesis, bias and sensitivity findings first proposed by Maki (2007a) were successfully replicated in the associative condition, with slope and intercept values falling within the expected range. While these findings were not fully replicated when extending the analysis to include semantic and thematic judgments (as slopes in these conditions did not fall within the appropriate range), participants still displayed high intercepts and shallow slopes, suggesting overconfidence in judgment making and an insensitivity to changes in strength between pairs. Additionally, when looking at the frequency that each predictor was the strongest in making judgments, FSG was the best predictor for both the associative and semantic conditions, while LSA was the best predictor in the thematic condition. In each of the three conditions, COS was the weakest predictor, even when participants were asked to make semantic judgments. This finding suggests that associative relationships seem to take precedence over semantic relationships when judging pair relatedness, regardless of what type of judgment is being made. Additionally, this result may be taken as further evidence of a separation between associative information and semantic information, in which associative information is always processed, while semantic information may be suppressed due to task demands (Buchanan 2010; Hutchison and Bosco 2007).

Our second hypothesis examined the three-way interaction between FSG, COS, and LSA when predicting participant judgments. At low semantic overlap, a seesaw effect was found in which increases in thematic strength led to decreases in associative predictiveness. This finding was then replicated in hypothesis 3 when extending the analysis to predict recall. By limiting the semantic relationships between pairs, an increased importance is placed on the role of associations and thematics when making judgments or retrieving pairs. In such cases, increasing the amount of thematic overlap between pairs results in thematic relationships taking precedent over associative relationships. However, when semantic overlap was high, a complimentary relationship was found in which increases in thematic strength in turn led to increases in the strength of FSG as a predictor. This result suggests that at high semantic overlap, associations and thematic relations build upon one another. Because thematics is tied to both semantic overlap and item associations, the presence of strong thematic relationships between pairs during conditions of high semantic overlap boosts the predictive ability of associative word norms. Again, this complimentary effect was found when examining both recall and judgments.

Finally, our fourth hypothesis used judgment slopes and intercepts obtained from hypothesis 1 to investigate if participants’ bias and sensitivity to word relatedness could be used as a predictor of recall. For the associative condition, the FSG slope significantly predicted recall. In the semantic condition, recall was significantly predicted by both the COS and LSA slopes. However, although the LSA slope was the strongest, no significant predictors were found in the thematic condition. This result may be due to the fact that thematic relationships between pairs act as a blend between associations and semantics. As such, LSA faces increased competition from the associative and semantic database norms when predicting recall in this manner.

Overall, our findings indicated the degree to which the processing of associative, semantic, and thematic information impacts retrieval and judgment making and the interactive relationship that exists between them. While previous research has shown that memory networks are divided into separate systems which handle storage and processing for meaning and association, this interaction is a strong indicator that connections exist between these networks, linking them to one another. As such, we propose a three-tiered hypothesis of memory as a means of explaining this phenomenon. First, the semantic memory network processes features of concepts and provides a means of categorizing items based on the similarity of their features. Next, the associative network adds information for items based on contexts generated by reading or speech. Finally, the thematic network pulls in information from both the semantic and associative networks to create a mental representation of both the item and its place in the world. Viewing this model through the lens of semantic memory, it is somewhat similar in concept to the dynamic attractor models (Hopfield, 1982; McCleod, Shallice, and Plaut, 2000; see Jones et al. 2015 for a review), as these models of semantic memory take into account multiple restraints (such as links between semantics and the orthography of the concept in question), which the model make use of in processing meaning. Our hypothesis, takes this proposal one step further by linking the underlying meaning of a concept with both its co-occurrences in everyday language and the general contexts in which it typically appears. Ultimately, further studies of recall and judgment within the context of these memory networks are needed to further explore this notion.