

Decoy Effects in Preferential Choice Across the Adult Lifespan



Mark E. Faust¹, Kristi S. Multhaup², Patricia A. Brooks², Sarah Frey², Blair Hicks², Robbie Mauney², & Charlotte Williams²
¹University of North Carolina at Charlotte ²Davidson College



INTRODUCTION

- ❖ Many choice phenomena have been well-studied in younger, but not older, adults (Peters, Finucane, MacGregor, & Slovic, 2000; Sanfey & Hastie, 2000).
- ❖ **Decoy effects** are changes in the relative preference between two items due to the addition of a third noninformative alternative that often violate assumptions of normative rational choice theories (Busemeyer & Diederich, 2002; Weddell, 1991).
 - ❖ **Example:** Coke > Pepsi, but if add in RC Cola then Pepsi > Coke
- 3 Types of Decoy Effect** (Roe, Busemeyer, & Townsend, 2001)
 - ❖ Choose between **Car A & Car B** (see **Figure 1**) which are defined ONLY on hypothetical expert ratings of **Performance & Economy**
 - ❖ Relative preference for Car A vs. Car B may change due to including one of **Decoy Cars 1-6** in the choice set:
 - ❖ Decoy 1 or 2: **Attract** preference to Car A or B, respectively
 - ❖ Decoy 3 or 4: **Similar** to Car A or B, respectively, draw pref. away
 - ❖ Decoy 5 or 6: **Compromise**, draws preference towards A or B, respectively

Aging & Decoy Effects

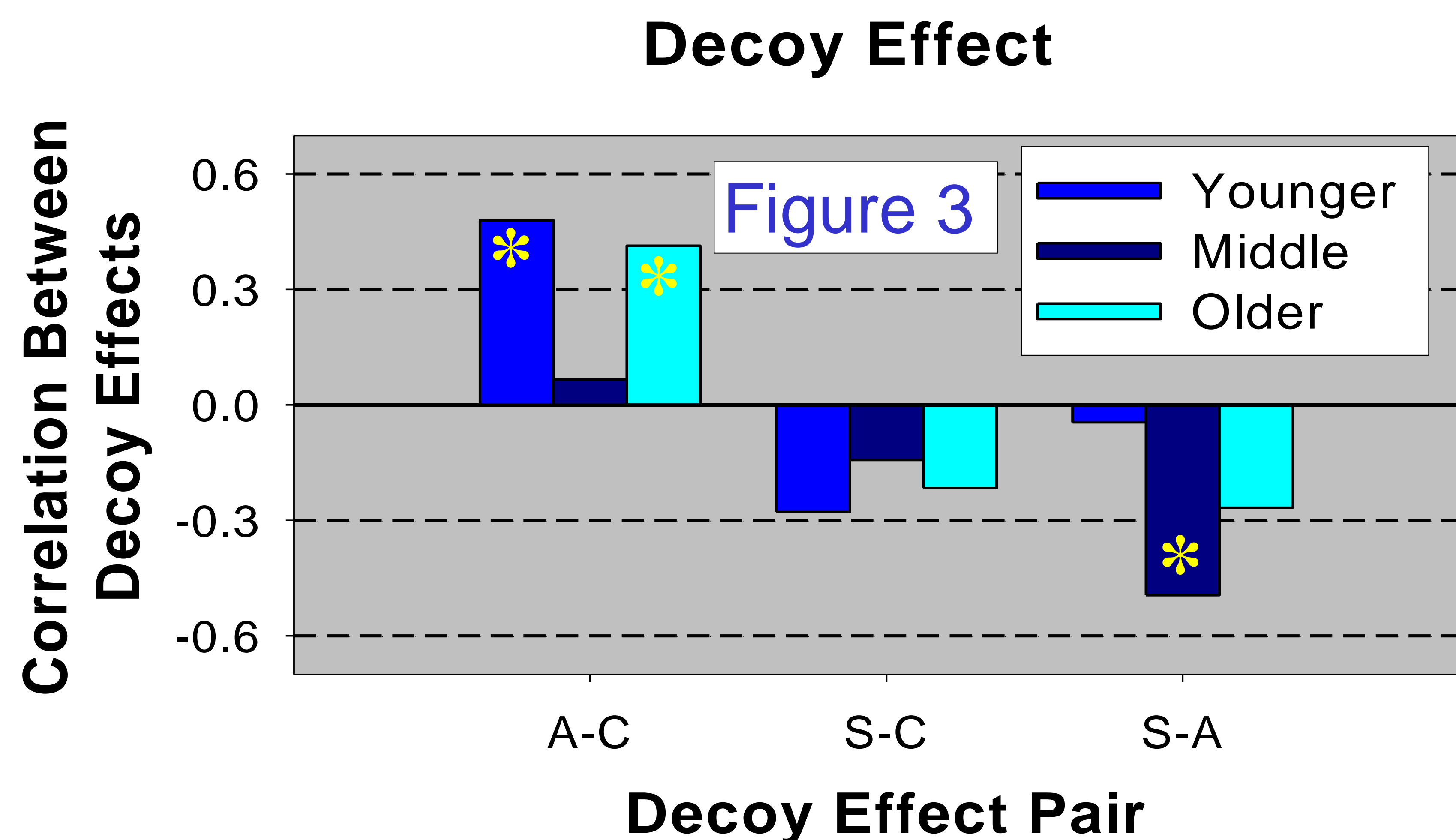
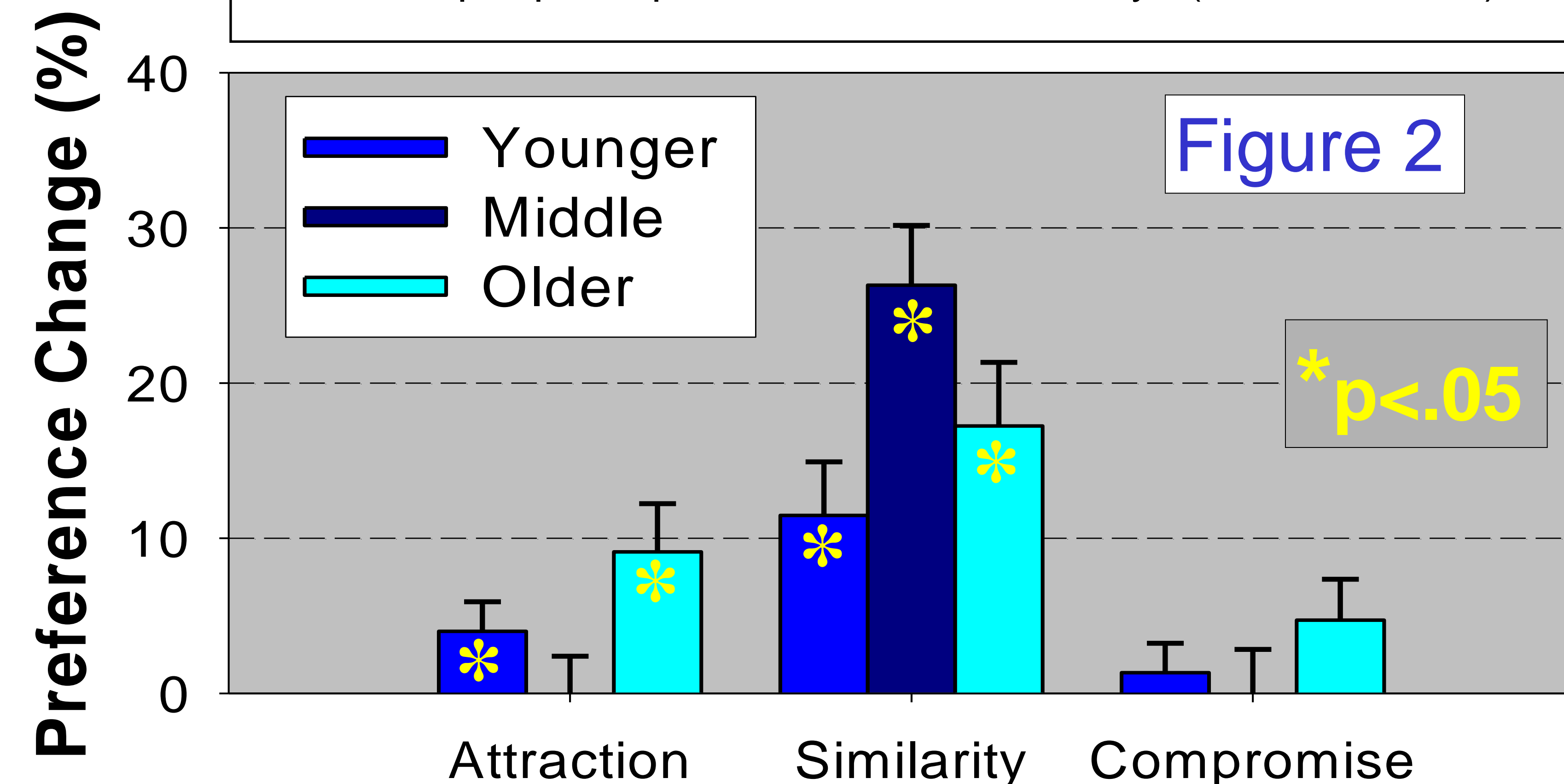
- ❖ Older adults have shown more stable preferences than younger adults.
- ❖ Older adults do not show **attraction effects** under conditions that younger adults do (Bergeron et al., 2002; Kim & Hasher, 2005; Tentori, Osherson, Hasher, & May, 2001).
- ❖ Choice domain (shopping discount cards, extra-credit assignments) modulates attraction effects in young, but not older, adults (Kim & Hasher, 2005).

Present Study

- ❖ Do age-related differences in the **attraction effect** extend to cars?
- ❖ Are there age-related changes in **similarity & compromise effects**?
- ❖ What does making **Car A & Car B** less distinct than in our prior research (closer in **Figure 1**) do to decoy effects in preferential choice?

METHOD

Participants: 49 younger (18-29 years), 57 middle-aged (30-57 years), & 52 older (60-92 years) adults.
Procedure: Choose preferred car from 3 car choice set.
Materials: 6 A-B pairs (see **Figure 1**). Each A-B pair repeated 6 times per participant with each of 6 decoys (36 choice sets).



RESULTS

Group Means: Figure 2

- ❖ Older & younger: Significant **attraction effects**
 - ❖ All Grps: Sig. **similarity**, no **compromise effects**
 - ❖ Age-related diffs in **attraction & similarity effects**
- Correlations: Figure 3**
- ❖ No Group diffs in direction of sample correlations

Previous Study (Faust, Multhaup, Perkins, Patterson, Jaguszyn, Weigand, & Feman, 2006)

Design

- ❖ Similar to current study
- ❖ A-B Items **MORE** distinct (further apart in **Figure 1**)
- ❖ Different compromise measure (not included)

Results: Figure 4

- ❖ No age-related differences in decoy effects

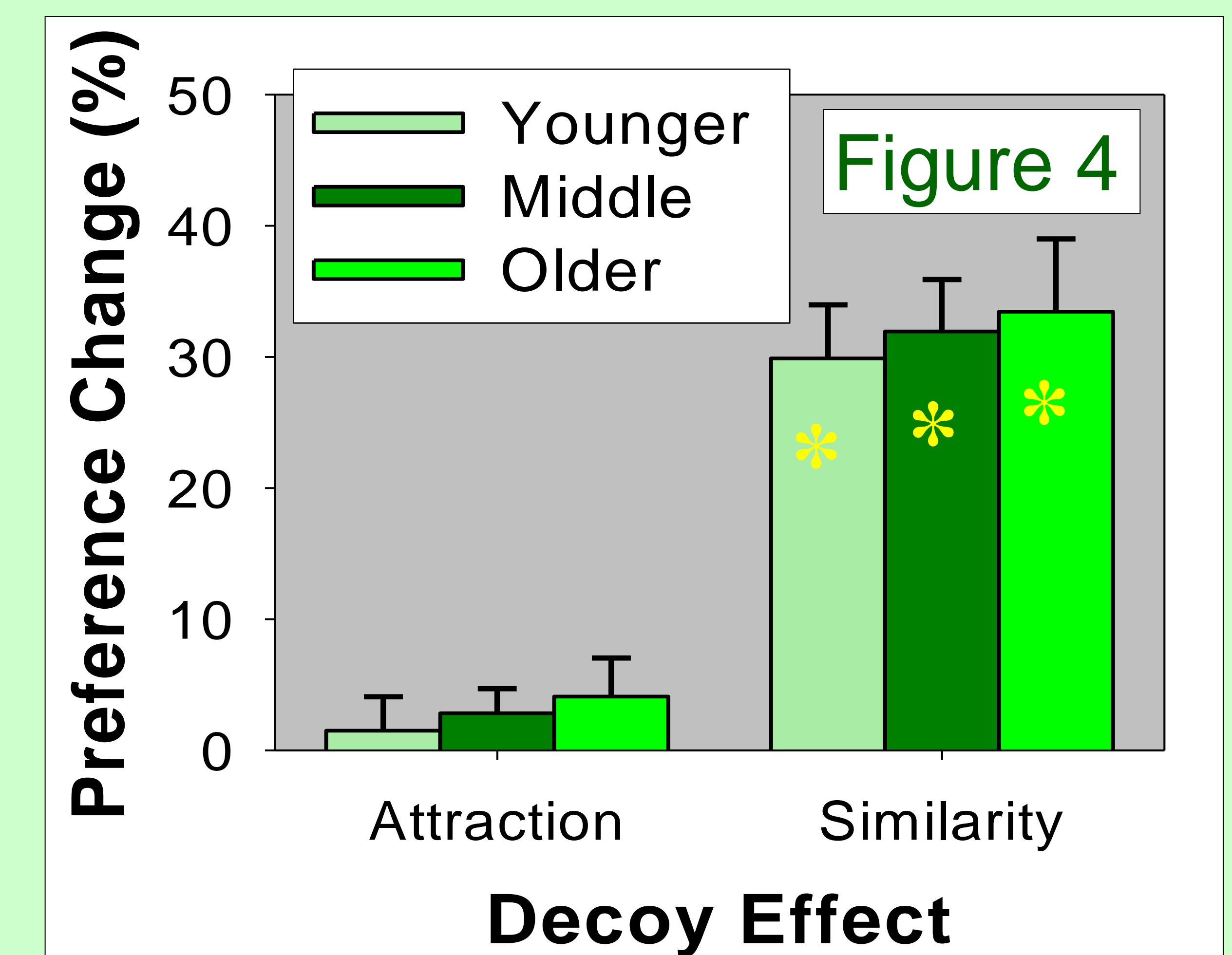
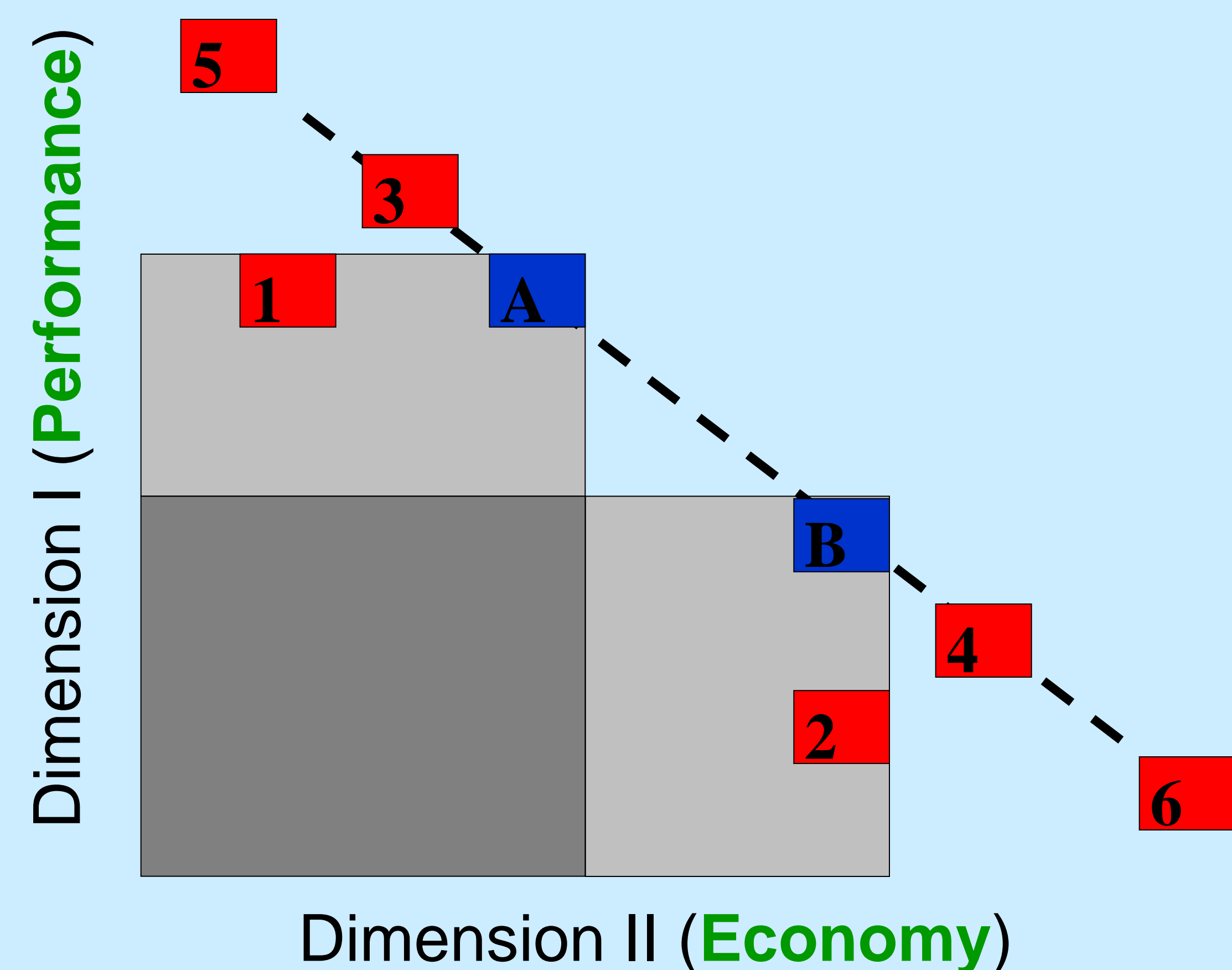


Figure 1: Car A vs. Car B?



CONCLUSIONS

- ❖ Key findings include
 - ❖ The attraction effect generalizes to the cars domain and to a repeated measures design.
 - ❖ First report of age-related *increase* in attraction effects (cf. Bergeron et al., 2002; Faust et al., 2006; Kim & Hasher, 2005; Tentori, Osherson, Hasher, & May, 2001).
 - ❖ First report of age-related differences in similarity effect.
- ❖ Comparison across studies suggests that the distance between A & B items in the stimulus space (see **Figure 1**) may be an important factor determining whether age-related differences in decoy effects are observed. Changing stimulus distinctiveness may encourage changes in memory strategies.
- ❖ The pattern of intercorrelations of decoy effects are consistent with a recent computational network model of decoy effects, suggesting that age-related differences in decoy effect may be able to be captured with a process parameter (e.g., the inhibitory control parameter, Roe et al., 2001).

References

Bergeron, C. B., Greenberg, A., Hess, C., Papadopoulos, K., Sherwood, K., Multhaup, K. S., Faust, M. E., & Sanow, S. (2002). Age-related differences in within-subjects irregular preferences. Poster presented at the 43rd annual meeting of the Psychonomic Society, November 21-24, 2001, in Kansas City, Missouri.

Busemeyer, J. R., & Diederich, A. (2002). Survey of decision field theory. *Mathematical Social Sciences*, 43, 345-370.

Faust, M. E., Multhaup, K. S., Perkins, J., Patterson, M., Jaguszyn, M., Weigand, B., & Chin Feman, S. P. (2006, April). *Age and decoy effects in preferential choice*. Poster presented at the biennial Cognitive Aging Conference, Atlanta, GA.

Kim, S., & Hasher, L. (2005). The attraction effect in decision making: Superior performance by older adults. *Quarterly Journal of Experimental Psychology*, 58A, 120-133.

Peters, E., Finucane, M. L., MacGregor, D. G., & Slovic, P. (2000). The bearable lightness of aging: Judgment and decision processes in older adults. In P. C. Stern, & L. L. Carstensen (Eds.), *The aging mind: Opportunities in cognitive research*. Washington, DC: National Academy Press.

Roe, R. M., Busemeyer, J. R., & Townsend, J. T. (2001). Multialternative decision field theory: A dynamic connectionist model of decision making. *Psychological Review*, 108, 370-392.

Sanfey, A. G., & Hastie, R. (2000). Judgment and decision making across the adult life span: A tutorial review of psychological research. In D. C. Park, & N. Schwartz (Eds.), *Cognitive aging: A primer* (pp. 253-273). Philadelphia: Psychology Press.

Tentori, K., Osherson, D., Hasher, L., & May, C. (2001). Wisdom and aging: Irrational preferences in college students but not older adults. *Cognition*, 81, B87-B96.

Weddell, D. H. (1991). Distinguishing among models of contextually induced preference reversals. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 17, 767-778.