Comprehensive Examination in Experimental Psychology for Fall 2006

Cognitive Comprehensive Questions and Readings:

1. (da) Sometimes you can tell a lot about how a system works by examining how it systematically fails. Identify some systematic failures of human cognition in each of the following areas, and relate them to major theories from those domains: memory, problem-solving, judgment and decision-making, text comprhension. Also note that, although you should cite everthing in the reading list below, you are not restricted to those sources for your answer, so long as all sources are properly documented with citations and a reference list. (Maximum length: 6 pages double-spaced, 12-point Times New Roman font, not including references list.)

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*. **39**, 341-350.

Loftus, E.F., Burns, H.J., & Miller, D.G. (1978). Semantic integration of verbal information into a visual memory. *Journal of Experimental Psychology: Human Learning and Memory*, **4**, 19-31.

Miller, G.A. (1956). The magic number seven, plus or minus two: some limits on our capacity for processing information. *Psychological review*, **63**, 81-97.

Newell, A., Shaw, J.C., & Simon, H.A. (1958). Elements of a theory of problem solving. *Psychological review*, **65**, 151-166.

Whittlesea, B.A., Jacoby, L.L., & Girard, K. (1990). Illusions of immediate memory: Evidence of an attributional basis for feelings of familiarity and perceptual quality. *Journal of Memory and Language*, **29**, 716-732.

Kintsch, W. (1988). The use of knowledge in discourse processing: A construction-integration model. Psychological Review, 95, 163-182.

Bransford, J. D., & Franks, J. J. (1971). The abstraction of linguistic ideas. Cognitive Psychology, 2, 331-350.

2. (da) Is text comprehension more like perception or more like problem solving? Explain. In the process be sure to mention the following theories and coherently talk about how they relate to one another and to the question of perception-like vs. problem-solving-like comprehension: construction-integration, memory-based processing, constructionist, minimalist, explanation-based processing, resonance model. Also note that, although you should cite everthing in the reading list below, you are not restricted to those sources for your answer, so long as all sources are properly documented with citations and a reference list. (Maximum length: 5 pages double-

spaced, 12-point Times New Roman font, not including references list.)

Graesser, A.C., Singer, M., & Trabasso, T. (1994). Constructing inferences during narrative text comprehension. *Psychological Review*, **101**, 371-395.

McKoon, G., & Ratcliff, R. (1992). Inference during reading. *Psychological Review*, **99**, 440-466.

Kintsch, W. (1988). The use of knowledge in discourse processing: A construction-integration model. Psychological Review, 95, 163-182.

Gerrig, R.J., & O'Brien, E.J. (2005). The scope of memory-based processing. *Discourse Processes, 39*(2&3), 225-242.

van den Broek, P., Rapp, D.N., & Kendeou, P. (2005). Integrating memory-based and constructionist processes in accounts of reading comprehension. *Discourse Processes, 39*(2&3), 299-316.

Gueraud, S., & O'Brien, E.J. (2005). Components of comprehension: A convergence between memory-based processes adn explanation-based processes. Discourse Processes, 39(2&3), 123-124.

3. (pg) Describe the studies of Hubel and Wiesel on the striate cortex. What is the functional significance of their discoveries? Compare this physiological approach with the psychophysical approach represented by the Spatial Frequency Channels theory.

DeValois, R.L., & DeValois, K.K. (1988) Spatial Vision. Oxford: Oxford University Press.

Hubel, D. H., & Wiesel, T. N. (1968). Receptive fields and functional architecture of monkey striate cortex. *Journal of Physiology, 195,* 215-243.

Hubel, D. H., & Wiesel, T.N. (1979). Brain mechanisms of vision. *Scientific America, 241,* 130-144.

Hubel, D. H. (1982). Exploration of the primary visual cortex, 1955-78 (Nobel Lecture). *Nature, 299,* 515-524.

Palmer, S. (1999). Processing Image Structure. In Vision Science. MIT Press.

4. (jc) Describe the asymmetric dominance effect, the phantom decoy effect, and the compromise effect, giving specific examples of each. What factors might account for these effects? How might Simonson's (1989) Choice-Justification Model, Helson's (1964) Adaptation-Level Theory, Parducci's (1965,1995) Range-Frequency Theory, and Choplin and Hummel's (2002) Comparison-Induced Distortion Theory account for these effects? What are the strengths and weaknesses of each theory?

Choplin, J.M. & Hummel, J.E. (2002). Magnitude comparisons distort mental representations of magnitude. Journal of Experimental Psychology: General, 131(2), 270-286.

Highhouse, S. (1996). Context-dependent selection: The effects of decoy and phantom job candidates. Organizational Behavior and Human Decision Processes, 65(1), 68-76.

Huber, J., Payne, J.W., & Puto, C. (1982). Adding asymmetrically dominated alternatives: Violations of regularity and the similarity hypothesis. Journal of Consumer Research, 9, 90-98.

Huber, J. & Puto, C. (1982). Market boundaries and product choice: Illustrating attraction and substitution effects. Journal of Consumer Research, 10, 31-44.

Simonson, I. (1989). Choice based on reasons: The case of attraction and compromise effects. Journal of Consumer Research, 16, 158-174.

Wedell, D.H. & Pettibone, J.C. (1996). Using judgments to understand decoy effects in choice. Organizational Behavior & Human Decision Processes, 67, 326-344.

5. These two articles criticize the way experimental psychologist carry out research. One is ten years old, and the other is over 30 years old. Are these critiques still valid in your topic of research? Explain why, and outline either a defense or a way to overcome Newell's and Loftus' arguments.

Bowe, B. (1997) Null Science. Science News

Newell, A. (1973). You can't play 20 questions with nature and win: Projective comments on the papers of this symposium. In W.G. Chase (Ed.) Visual Information Processing. New York: Academic Press, pp. 283-308.