

Supplement

Status of Selected Psychological Theory Competitions

The first three columns of Table S1 reproduce those from Table 1 in Greenwald (*Perspective on Psychological Science*, in press). The fourth column provides a recent citation for each of the 13 controversies summarized in Table 1. The criteria used to select recent citations were (a) recency of publication, (b) prominence of location, and (c) relevance to the controversy.

Only one of the 13 recent articles listed in Table S1's fourth column gives a basis for treating that controversy as having ended. This is Corballis's (1997) article, which asserts that analog representations are now consensually accepted as playing the key role in mental rotation tasks. The conclusion that this controversy has ended is further supported, indirectly, by lack of more recent articles that advance the alternative theory in terms of propositional representations.

Table A1: Psychology's Unresolved Theory Competitions

Phenomenon	Competing Theories	Initial or Early Publication	Recent Publication
Sapir–Whorf hypothesis	Language/culture does (or does not) influence categorization	Whorf (1956)	Regier et al. (2010)
Structure of affect	bipolar vs. independent positive and negative dimensions	Nowlis & Nowlis (1956)	Berntson et al., (2009)
Counter-attitudinal role playing	dissonance vs. self-perception vs. impression management	Festinger & Carlsmith (1959)	Olson & Stone (2005)
Memory search	serial vs. parallel search	Sternberg (1966)	Townsend & Fifić (2004)
Implicit learning	rules vs. associative learning	Reber (1967)	Perruchet & Pacton (2006)
Mental rotation	analog vs. propositional representation	Shepard & Metzler (1971)	Corballis (1997) ^a
Semantic priming	spreading activation vs. compound cueing	Meyer & Schvaneveldt (1971)	Jones (2010)
Categorization	features, exemplars, prototypes, rules	Labov (1973)	Johansen & Kruschke (2005) ^b
Altruism	Intrinsic vs. extrinsic motivation	Cialdini, Darby, & Vincent (1973)	Warneken & Tomasello (2008)
Misleading information	altered traces vs. independent traces	Loftus & Palmer (1974)	Higham et al. (2011)
Judgment under uncertainty	heuristics & biases vs. rationality	Tversky & Kahneman (1974)	Todd & Gigerenzer (2007)
Affect–cognition relationship	affective primacy vs. cognitive primacy	Zajonc (1980)	Storbeck & Clore (2007)
Memory dissociations	modules vs. processes vs. thresholds	Jacoby & Dallas (1981)	Cowell et al. (2010)

^a Corballis's (1997) article describes the mental rotation controversy as resolved in favor of the analog representation view. No more recent publication advancing the propositional representation alternative was located.

^b This controversy is treated as unresolved by some researchers, but the recent article by Smith and Grossman (2008) has argued, using brain imaging evidence, for “multiple systems of category learning”, which suggests a controversy resolution in the form treating multiple theories of the nature of category representations as valid in distinguishable domains of application.

References

- Berntson, G. G., Norman, G. J., & Cacioppo, J. T. (2009). Evaluative processes. In G. G. Berntson & J. T. Cacioppo (Eds.), *Handbook of neuroscience for the behavioral sciences*, Vol. 2 (pp. 617–634).
- Cialdini, R. B., Darby, B. L., & Vincent, J. E. (1973). Transgression and altruism: A case for hedonism. *Journal of Experimental Social Psychology*, *9*(6), 502–516.
- Corballis, M. C. (1997). Mental rotation and the right hemisphere. *Brain and Language*, *57*, 100–121.
- Cowell, R. A., Bussey, T. J., & Saksida, L. M. (2010). Functional dissociation within the ventral object processing pathway: Cognitive modules or a hierarchical continuum? *Journal of Cognitive Neuroscience*, *22*, 2460–2479.
- Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology*, *58*, 203–210.
- Higham, P. A., Luna, K., & Bloomfield, J. (2011). Trace-strength and source-monitoring accounts of accuracy and metacognitive resolution in the misinformation paradigm. *Applied Cognitive Psychology*, *25*, 324–335.
- Jacoby, L. L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General*, *110*, 306–340.
- Johansen, M. K., & Kruschke, J. K. (2005). Category representation for classification and feature inference. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *31*, 1433–1458.
- Jones, L. L. (2010). Pure mediated priming: A retrospective semantic matching model. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *36*, 135–146.
- Labov, W. (1973). The boundaries of words and their meanings. In C.–J. N. Bailey and R. W. Shuy (eds.) *New ways of analysing variation in English*. Washington: Georgetown University Press.
- Loftus, E. F., & Palmer, J. C. (1974). Reconstruction of automobile destruction: An example of the interaction between language and memory. *Journal of Verbal Learning & Verbal Behavior*, *13*(5), 585–589.
- Nowlis, V. & Nowlis, H. H. (1956). The description and analysis of mood. *Annals of the New York Academy of Sciences*, *65*, 345–355.
- Meyer, D. E., & Schvaneveldt, R. W. (1971). Facilitation in recognizing pairs of words: Evidence of a dependence between retrieval operations. *Journal of Experimental Psychology*, *90*(2), 227–234.

- Olson, J. M., & Stone, J. (2005). The influence of behavior on attitudes. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 223–271). Mahwah, NJ: Lawrence Erlbaum Associates.
- Perruchet, P., & Pacton, S. (2006). Implicit learning and statistical learning: One phenomenon, two approaches. *Trends in Cognitive Sciences*, *10*, 233–238.
- Reber, A. S. (1967). Implicit learning of artificial grammars. *Journal of Verbal Learning & Verbal Behavior*, *6*, 855–863.
- Regier, T., Kay, P., Gilbert, A. L., & Ivry, R. B. (2010). Language and thought: Which side are you on, anyway? In B. C. Malt & P. Wolff (Eds.), *Words and the mind: How words capture human experience* (pp. 165–182). New York: Oxford University Press.
- Shepard, R. N., & Metzler, J. (1971). Mental rotation of three-dimensional objects. *Science*, *171*(3972), 701–703.
- Smith, E. E., & Grossman, M. (2008). Multiple systems of category learning. *Neuroscience and Biobehavioral Reviews*, *32*, 249–264.
- Sternberg, S. (1966). High-speed scanning in human memory. *Science*, *153*, 652–654.
- Storbeck, J., & Clore, G. L. (2007). On the interdependence of cognition and emotion. *Cognition and Emotion*, *21*, 1212–1237.
- Todd, P. M., & Gigerenzer, G. (2007). Environments that make us smart: Ecological rationality. *Current Directions in Psychological Science*, *16*, 167–171.
- Townsend, J. T., & Fifić, M. (2004). Parallel versus serial processing and individual differences in high-speed search in human memory. *Perception & Psychophysics*, *66*, 953–962.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*(4157), 1124–1131.
- Warneken, F., & Tomasello, M. (2008). Extrinsic rewards undermine altruistic tendencies in 20-month-olds. *Developmental Psychology*, *44*, 1785–1788.
- Whorf, B. L. (1956). *Language, thought, and reality*. Cambridge, MA: MIT Press.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*, 151–175.