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Recognition-based judgments and decisions: Introduction to the special issue (II)

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1 Introduction

We are pleased to present Part II of this Special Issue of *Judgment and Decision Making* on recognition processes in inferential decision making. In addition, it is our pleasure to announce that there will be a third part, providing, among other contents, comments on the articles published in Parts I and II as well as on the broader scholarly debates reflected by these articles (Table 1). We have therefore decided to keep this introduction to Part II short.

Part II contains 7 articles, featuring a range of new experimental tests of Goldstein and Gigerenzer's (1999, 2002; Gigerenzer & Goldstein, 1996) *recognition heuristic*, which is the model of recognition-based judgments and decisions that is central to almost all articles published in the parts of this special issue (Table 2). In addition, Part II presents very early but thus far unpublished experiments on this heuristic, and a discussion of past and future research on recognition-based judgments and decisions as well as an outline of challenges for future recognition heuristic research. Let us provide a short overview of the articles' contents.

Gigerenzer and Goldstein (1996) proposed the recognition heuristic as a model for situations in which a decision maker has to retrieve all available information from memory—a decision task they dubbed *inferences from memory*.[1] Following the recognition heuristic, decisions can be based solely on a person's recognition judgments, that is, on a sense of prior encounter with an alternative's name (e.g., a car brand's name). Yet, thus far comparatively little research has focused on how the decision processes assumed by the recognition heuristic tie into memory processes; for instance into those that determine whether an alternative's name is judged as recognized or not.

Erdfelder, Küpper-Tetzel, and Mattern (2011) aim to fill this gap (see also, e.g., Pleskac, 2007; Schooler & Hertwig, 2005) by studying the recognition heuristic from the perspective of a two-high-threshold model of recognition memory (Bredenkamp & Erdfelder, 1996; Snodgrass & Corwin, 1988) that belongs to the class of multinomial processing tree models (Batchelder & Riefer, 1990; Erdfelder et al., 2009). Following this two-high-threshold model, Erdfelder et al. (2011) assume that recognition judgments can arise from two types of cognitive states: (i) certainty states in which recognition judgments are strongly correlated with memory strength (including certainty for recognition with high memory strength as well as certainty for non-recognition with low memory strength) and (ii) uncertainty states in which recognition judgments reflect guessing rather than differences in memory strength. Erdfelder et al. (2011) report an experiment designed to test the prediction that the recognition heuristic applies to certainty states only. Based on their results, they argue that memory states influence people's reliance on recognition in binary decisions. Erdfelder et al.'s (2011) article thus not only contributes to the recognition heuristic literature, but also to the broader field of recognition memory research and two-high-threshold models in particular (e.g., Bröder & Schütz, 2009; Erdfelder & Buchner, 1998; Erdfelder, Cüpper, Auer, & Undorf, 2007).

Glöckner and Bröder (2011) consider a different decision making task than the memory-based inference situation Erdfelder et al. (2011) study and Goldstein and Gigerenzer (e.g., 1999; Gigerenzer & Goldstein, 1996) defined as the domain for the recognition heuristic. Specifically, Glöckner and Bröder consider an experimental paradigm where both recognized and unrecognized alternatives' attributes are laid out openly to a decision maker, enabling her to access such attributes directly rather than having to retrieve them from memory. That participants thus have knowledge about *unrecognized* alternatives is fundamentally different from the situation Goldstein and Gigerenzer originally considered, where unrecognized objects are assumed to be completely novel to participants. In Glöckner and Bröder's paradigm, these attributes of unrecognized and recognized alternatives can be used as *cues* for making decisions in addition to

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[1] In 1996, Gigerenzer and Goldstein still referred to the recognition heuristic as *recognition principle*.

Table 1: Scholarly debates reflected in the papers of the special issue.

1. How should the adequacy of the recognition heuristic as a model of behavior be assessed?
2. On what sort of recognition process does the recognition heuristic operate?
3. When will the recognition heuristic help decision makers to make accurate inferences about unknown quantities?
4. When will people rely on the recognition heuristic, ignoring other knowledge about alternatives' attributes, and when will people switch to other decision strategies instead?
5. How do people know when to choose which decision strategy, and how many strategies are available that they may choose from in a given situation?
6. What are alternative conceptions to the fast and frugal heuristics framework that do not assume people to make use of a repertoire of decision strategies?

For more details on the controversial issues see Marewski, Pohl, and Vitouch (2010) and Pohl (in press).

or instead of relying on a sense of recognition of the alternative's name, resembling, for instance, the type of decision situation consumers may face when buying products on the internet. Glöckner and Bröder test (a) a variant[2] of the recognition heuristic for their experimental paradigm, as well as (b) a related model of decision making, called *take-the-best* (Gigerenzer & Goldstein, 1996), and (c) a *parallel constraint satisfaction model* (Glöckner & Betsch, 2008) against each other. In contrast to both the frugal recognition heuristic and take-the-best, this more complex parallel constraint satisfaction model uses *all* attributes of an alternative as cues. Glöckner and Bröder conclude that people's behavior is better accounted for by the complex parallel constraint satisfaction model than by the recognition heuristic and take-the-best. Interestingly however, even though all attributes of both recognized and unrecognized alternatives were directly accessible to participants, a small proportion of participants seems to be better modeled by the recognition heuristic and take-the-best, with the size of this group depending on the model selection and model classification procedures used. Glöckner and Bröder's article is exceptional in the recognition heuristic literature, as most studies on this heuristic did not compare this heuristic's ability to predict behavior to that of other models. Specifically, Glöckner and Bröder's article presents the fourth model comparison conducted hitherto on the recognition heuristic (for the three previous model comparisons, see Marewski, Gaissmaier, Schooler, et al., 2009, 2010; Pachur & Biele, 2007), and the first model comparison outside the recognition heuristic's domain of memory-based inferences. In memory-based inferences, the three previous model comparisons had shown the recognition heuristic to be a better model than several more complex competing strategies.

Hoffrage (2011) takes us back to the early days of the recognition heuristic. He reports three experiments, featuring inferences from memory, which were conducted many years ago, but which led to the "discovery" of the recognition heuristic in those days (see also Gigerenzer & Goldstein, 2011). Experiments 1 and 2 aim at disentangling the sampling procedure used to construct an item set (e.g., a set of car brands) and the resulting item difficulty, which in turn could influence participants' decision making. Previous studies had shown that the difficulty of item sets could be biased due to the item-sampling procedure, thus leading to overconfidence or underconfidence in paired comparisons. Experiment 1 shows an unexpected result. Hoffrage reports that, in order to explain it, one of his former colleagues proposed that recognition (and lack thereof) could be exploited to yield high levels of accuracy. Experiment 2 then uses different materials and finds that overconfidence could be similarly large for an easy and a hard set of items. Finally, Experiment 3 presumably represents the first test of the recognition heuristic. In this experiment, participants' recognition of city names is assessed and a paired comparison task of cities

[2]It may be argued that Glöckner and Bröder (2011) did not actually test the original recognition heuristic model, but rather an interesting extension of it. The recognition heuristic as specified by Goldstein and Gigerenzer (1999, 2002; Gigerenzer & Goldstein, 1996) has been defined as a model for inferences from memory. In inferences from memory, no information about an alternative's attributes is given to a decision maker; rather all information has to be retrieved from memory. As people will typically not recall information about alternatives whose name they do not even recognize, the attributes of unrecognized alternatives remain unknown, resulting in the asymmetry of information the recognition heuristic exploits. The editors did not fully agree among themselves whether the model Glöckner and Bröder test actually represents the recognition heuristic as originally specified by Goldstein and Gigerenzer, because they interpret the corresponding definitions in the aforementioned articles by Goldstein and Gigerenzer in different ways.

Table 2: The recognition heuristic and the fast and frugal heuristics framework.

The recognition heuristic is only one of several simple decision strategies that have been developed within the *fast and frugal heuristics framework* (Gigerenzer, Todd, & the ABC Research Group, 1999; for recent overviews, see Marewski, Gaissmaier, & Gigerenzer, 2010; for a critical discussion, see Dougherty, Franco-Watkins, & Thomas, 2008). In keeping with other frameworks (e.g., Hogarth & Karelaia, 2007; Payne, Bettman, & Johnson, 1993), this approach to judgment and decision making assumes that the mind comes equipped with a repertoire of strategies, each of which is hypothesized to exploit how basic cognitive capacities, such as recognition memory, represent regularities in the structure of our environment. This exploitation of basic cognitive capacities and environmental structure enables the heuristics to yield accurate judgments based on little information, for example, a sense of recognition.

Originally, Goldstein and Gigerenzer (1999) formulated the recognition heuristic as a model for inferences about two alternatives (i.e., two-alternative forced choice tasks or paired comparison task). Recently, the heuristic has been extended to situations with N alternatives ($N > 2$; see Frosch, Beaman, & McCloy, 2007; Marewski, Gaissmaier, Schooler, Goldstein, & Gigerenzer, 2010; McCloy, Beaman, & Smith, 2008). The extended recognition heuristic reads as follows: *If there are N alternatives, then rank all n recognized alternatives higher on the criterion to be inferred than the N–n unrecognized ones.*

The recognition heuristic can help a person make accurate inferences about an *alternative's* (e.g., a brand) *criterion value* (e.g., product quality), when a person's memories of encounters with alternatives (e.g., brand names) correlate with the criterion values of the alternatives. This is the case, for example, for recognition of soccer teams and tennis players, which can be used to forecast their future success in sports competitions (e.g., Serwe & Frings, 2006), as well as for recognition of billionaires and musicians, which reflects their fortunes and record sales, respectively (Hertwig, Herzog, Schooler, & Reimer, 2008).

is conducted. The results show a large proportion of decisions made consistent with the recognition heuristic. In addition, the size of the reference class from which the cities were drawn appears to be influential. For a larger reference class (as compared to a smaller one), participants' performance is better, while mean confidence and overconfidence are lower. Hoffrage's experiments contribute not only to the recognition heuristic literature, but also to the overconfidence literature (see, e.g., Hoffrage, 2004, for a summary).

Herzog and Hertwig (2011) let us turn from individual decision making to forecasting. They investigate the recognition heuristic's ability to forecast the outcomes of soccer and tennis competitions, including the World Cup 2006 and UEFA Euro 2008. Specifically, in two studies and re-analyses of older data sets, they test how well soccer and tennis matches can be forecasted by counting how many people recognize players' names, a strategy known as the *collective recognition heuristic*. They compare the forecasting performance of the collective recognition heuristic to benchmarks such as predictions based on official rankings and aggregated betting odds and conclude that predictions based on recognition perform similarly to those computed from official rankings and reasonably well when compared to betting odds. Moreover, they report forecasts based on rankings to be improved by incorporating collective recognition. Herzog and Hertwig's article contributes to the growing literature examining the recognition heuristic in the context of sports tournaments (e.g., Pachur & Biele, 2007; Scheibehenne & Bröder, 2007; Serwe & Frings, 2006; Snook & Cullen, 2006), being one of the most systematic studies thus far conducted in that area.

Also **Gaissmaier and Marewski (2011)** focus on evaluating the recognition heuristic's ability to forecast the outcomes of future events. However, in contrast to Herzog and Hertwig (2011), they do not focus on sport events, but report four studies that test how well counting people's recognition of political parties' names allows forecasting the outcomes of four major German political elections. Comparing the collective recognition heuristic's forecasting accuracy to those of classic opinion polls and forecasts based on the wisdom of crowds, that is, forecasts generated by aggregating the hunches of people about the election outcomes, they find that recognition predicts the outcomes of political elections surprisingly well. Recognition-based forecasts were most competitive, for instance, when forecasting the smaller parties' success. However, wisdom-of-crowds forecasts outperformed recognition-based forecasts in most cases. Gaissmaier and Marewski conclude that wisdom-of-crowds forecasts are able to draw on the benefits of recognition while at the same time avoiding its downsides, such as lack of discrimination among well-known parties or recognition caused by factors unrelated to electoral success. At the same time, they find that a simple extension of the recognition-based forecasts—asking people what proportion of the population would recognize a party instead of whether they themselves recognize it—is able to eliminate these downsides.

Tomlinson, Marewski, and Dougherty (2011) outline four challenges to be met by future recognition heuristic research and call for a research strategy shift. They argue that future research should strive to implement and test the recognition heuristic in the context of theories of recognition memory, this way defining the basis of the recognition judgments on which the recognition heuristic operates (see also, e.g., Erdfelder et al., 2011; Pachur, 2010; Pleskac, 2007; Schooler & Hertwig, 2005). Tomlinson et al. also argue that future recognition heuristic research should push towards generalizing the recognition heuristic further beyond the two-alternative forced choice tasks in which the heuristic is typically studied (e.g., for first generalizations towards multiple alternatives, see Frosch et al., 2007; Marewski, Gaissmaier, Schooler, et al., 2010). At the same time, in Tomlinson et al.'s view, recognition heuristic research and research on heuristics in general should focus on specifying when people will rely on a given heuristic and when they will apply other decision strategies instead (see also, e.g., Glöckner & Betsch, 2010; Marewski, 2010). Finally, they call for the development and use of multiple methods for examining people's reliance on the recognition heuristic, emphasizing that future recognition heuristic research should test this heuristic competitively against alternative models in formal model comparisons (see also, e.g., Marewski & Olsson, 2009; Marewski, Schooler, et al., 2010). Tomlinson et al. close by stressing that recognition heuristic research should not address these challenges in small, isolated experiments, but rather aim to tackle them in concert, through a unified theoretical framework—much as has been advocated by A. Newell (e.g., 1973) and Anderson (e.g., Anderson et al., 2004) as a general strategy for psychological research.

Gigerenzer and Goldstein (2011), who proposed the recognition heuristic more than a decade ago (e.g., Goldstein & Gigerenzer, 1999), summarize the growing body of empirical evidence regarding this heuristic. For instance, they list situations in which people are likely to make decisions consistent with the recognition heuristic. They also point out that there have been some misunderstandings in the past regarding these situations. To illustrate this, they stress that the heuristic has been specified as a model for inferences from memory, and not for inferences where alternatives' attributes are laid out to a decision maker. Indeed, most previous studies have focused on inferences from memory (e.g., B. R. Newell & Fernandez, 2006; Pachur, Bröder, & Marewski, 2008; Pohl, 2006; Richter & Späth, 2006; but see e.g., Glöckner & Bröder, 2011; B. R. Newell & Shanks, 2004, for exceptions). This distinction is important not only theoretically, but also in terms of the conclusions that should be drawn from corresponding experiments: For example, also in our view, studies outside of the memory-based paradigm allow to push and test the limits of the recognition heuristic as a model of behavior, but should not be taken to refute it. Furthermore, Gigerenzer and Goldstein extend previous formulations of the recognition heuristic by assuming an evaluation stage prior to a decision stage (see also Gigerenzer & Brighton, 2009; Marewski, Gaissmaier, Schooler, et al., 2010; Pachur & Hertwig, 2006; Volz et al., 2006). The evaluation stage is hypothesized to determine whether relying on the recognition heuristic is ecologically rational for a particular inference, that is, whether the recognition heuristic helps a decision maker to behave adaptively, for instance by allowing her to make accurate inferences. Finally, the authors point to several open and likely future research questions. To illustrate this, the role of the recognition heuristic in preference formation is such a topic, while another one is the role of recognition in animal cognition.

At the close of this introduction to Part II, we would like to once more express our gratitude to the many authors who have submitted their impressive work to the parts of this special issue. We also thank all those who have acted as reviewers, and especially Jon Baron. As with the publication of Part I of this special issue, he has been a tremendous source of help, offering reliable, fast, thoughtful editorial advice and support throughout the entire process, and helping us to resolve the many scholarly disagreements we have had while compiling this special issue.

References

Anderson, J. R., Bothell, D., Byrne, M. D., Douglass, S., Lebiere, C., & Qin, Y. (2004). An integrated theory of the mind. *Psychological Review*, *111*, 1036–1060.

Batchelder, W. H., & Riefer, D. M. (1990). Multinomial processing models of source monitoring. *Psychological Review, 97*, 548–564.

Bredenkamp, J., & Erdfelder, E. (1996). Methoden der Gedächtnispsychologie [Methods in psychology of memory]. In D. Albert & K.-H. Stapf (Eds.), *Gedächtnis* (Enzyklopädie der Psychologie, Themenbereich C, Serie II, Band 4, S. 1–94). Göttingen, Germany: Hogrefe.

Bröder, A., & Schütz, J. (2009). Recognition ROCs are curvilinear—or are they? On premature arguments against the two-high-threshold model of recognition. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 35*, 587–606.

Dougherty, M. R., Franco-Watkins, A. M., & Thomas, R. (2008). Psychological plausibility of the theory of Probabilistic Mental Models and the Fast and Frugal Heuristics. *Psychological Review, 115*, 199–213.

Erdfelder, E., Auer, T.-S., Hilbig, B. E., Aßfalg, A., Moshagen, M., & Nadarevic, L. (2009). Multinomial processing tree models: A review of the literature. *Zeitschrift für Psychologie / Journal of Psychology*, *217*, 108–124.

Erdfelder, E., & Buchner, A. (1998). Process dissociation measurement models: Threshold theory or signal-detection theory? *Journal of Experimental Psychology: General, 127*, 83–97.

Erdfelder, E., Cüpper, L., Auer, T.-S., & Undorf, M. (2007). The four-states model of memory retrieval experiences. *Zeitschrift für Psychologie / Journal of Psychology, 215*, 61–71.

Erdfelder, E., Küpper-Tetzel, C. E., & Mattern, S. D. (2011). Threshold models of recognition and the recognition heuristic. *Judgment and Decision Making, 6*, 7–22.

Frosch, C. A., Beaman, C. P., & McCloy, R. (2007). A little learning is a dangerous thing: An experimental demonstration of recognition-driven inference. *The Quarterly Journal of Experimental Psychology*, *60*, 1329–1336.

Gaissmaier, W., & Marewski, J. N. (2011). Forecasting elections with mere recognition from small, lousy samples: A comparison of collective recognition, wisdom of crowds, and representative polls. *Judgment and Decision Making, 6*, 73–88.

Gigerenzer, G., & Brighton, H. (2009). Homo heuristicus: Why biased minds make better inferences. *Topics in Cognitive Science, 1,* 107–143.

Gigerenzer, G., & Goldstein, D. G. (1996). Reasoning the fast and frugal way: Models of bounded rationality. *Psychological Review*, *103,* 650–669.

Gigerenzer, G., & Goldstein, D. G. (2011). The recognition heuristic: A decade of research. *Judgment and Decision Making, 6*, 100–121.

Gigerenzer, G., Todd, P. M., & the ABC Research Group (Eds.) (1999). *Simple heuristics that make us smart*. New York: Oxford University Press.

Glöckner, A., & Betsch, T. (2008). Modeling option and strategy choices with connectionist networks: Towards an integrative model of automatic and deliberate decision making. *Judgement and Decision Making*, *3*, 215–228.

Glöckner, A., & Betsch, T. (2010). Accounting for critical evidence while being precise and avoiding the strategy selection problem in a parallel constraint satisfaction approach: A reply to Marewski. *Journal of Behavioral Decision Making,* 23, 468–472.

Glöckner, A., & Bröder, A. (2011). Processing of recognition information and additional cues: A model-based analysis of choice, confidence, and response time. *Judgment and Decision Making, 6*, 23–42.

Goldstein, D. G., & Gigerenzer, G. (1999). The recognition heuristic: How ignorance makes us smart. In G. Gigerenzer, P. M. Todd, & the ABC Research Group (Eds.), *Simple heuristics that make us smart* (pp. 37–58). New York: Oxford University Press.

Goldstein, D. G., & Gigerenzer, G. (2002). Models of ecological rationality: The recognition heuristic. *Psychological Review, 109,* 75–90.

Hertwig, R., Herzog, S. M., Schooler, L. J., & Reimer, T. (2008). Fluency heuristic: A model of how the mind exploits a by-product of information retrieval. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 34*, 1191–1206.

Herzog, S. M., & Hertwig, R. (2011). The wisdom of ignorant crowds: Predicting sport outcomes by mere recognition. *Judgment and Decision Making, 6*, 58–72.

Hoffrage, U. (2004). Overconfidence. In R. F. Pohl (Ed.), *Cognitive illusions: A handbook on fallacies and biases in thinking, judgement and memory* (pp. 235–254). Hove, UK: Psychology Press.

Hoffrage, U. (2011). Recognition judgments and the performance of the recognition heuristic depend on the size of the reference class. *Judgment and Decision Making, 6*, 43–57.

Hogarth, R. M., & Karelaia, N. (2007). Heuristics and linear models of judgment: Matching rules and environments. *Psychological Review*, *114*, 733–758.

Marewski, J. N. (2010). On the theoretical precision and strategy selection problem of a single-strategy approach: A comment on Glöckner, Betsch, and Schindler (2010). *Journal of Behavioral Decision Making*, *23*, 463–467

Marewski, J. N., Gaissmaier, W., & Gigerenzer, G. (2010). Good judgments do not require complex cognition. *Cognitive Processing, 11*, 103–121.

Marewski, J. N., Gaissmaier, W., Schooler, L. J., Goldstein, D. G., & Gigerenzer, G. (2009). Do voters use episodic knowledge to rely on recognition? In N. A. Taatgen & H. van Rijn (Eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society* (pp. 2232–2237). Austin, TX: Cognitive Science Society.

Marewski, J. N., Gaissmaier, W., Schooler, L. J., Goldstein, D. G., & Gigerenzer, G. (2010). From recognition to decisions: Extending and testing recognition-based models for multi-alternative inference. *Psychonomic Bulletin and Review*, *17*, 287–309.

Marewski, J. N., & Olsson, H. (2009). Beyond the null ritual: Formal modeling of psychological processes. *Zeitschrift für Psychologie / Journal of Psychology*, *217*, 49–60.

Marewski, J. N., Pohl, R. F., & Vitouch, O. (2010). Recognition-based judgments and decisions: Introduction to the special issue (Vol. 1). *Judgment and Decision Making*, *5*, 207–215.

Marewski, J. N., Schooler, L. J., & Gigerenzer, G. (2010). Five principles for studying people's use of heuristics. *Acta Psychologica Sinica*, *1*, 72–87.

McCloy, R., Beaman, C. P., & Smith, P. T. (2008). The relative success of recognition-based inference in multichoice decisions. *Cognitive Science*, *32*, 1037–1048.

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* (pp. 283–310). New York: Academic Press.

Newell, B. R., & Fernandez, D. (2006). On the binary quality of recognition and the inconsequentiality of further knowledge: Two critical tests of the recognition heuristic. *Journal of Behavioral Decision Making, 19*, 333–346.

Newell, B. R., & Shanks, D. R. (2004). On the role of recognition in decision making. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *30*, 923–935.

Pachur, T. (2010) Recognition-based inference: When is less more in the real world? *Psychonomic Bulletin and Review*, *2010*, 589–598.

Pachur, T., & Biele, G. (2007). Forecasting from ignorance: The use and usefulness of recognition in lay predictions of sports events. *Acta Psychologica*, *125*, 99–116.

Pachur, T., Bröder, A., & Marewski, J. (2008). The recognition heuristic in memory-based inference: Is recognition a non-compensatory cue? *Journal of Behavioral Decision Making, 21*, 183–210.

Pachur, T., & Hertwig, R. (2006). On the psychology of the recognition heuristic: Retrieval primacy as a key determinant of its use. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 32*, 983–1002.

Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The adaptive decision maker*. New York: Cambridge University Press.

Pleskac, T. J. (2007). A signal detection analysis of the recognition heuristic. *Psychonomic Bulletin & Review, 14,* 379–391.

Pohl, R. F. (2006). Empirical tests of the recognition heuristic. *Journal of Behavioral Decision Making, 19,* 251–271.

Pohl, R. F. (in press). On the use of recognition in inferential decision making: An overview of the debate. *Judgment and Decision Making*.

Richter, T., & Späth, P. (2006). Recognition is used as one cue among others in judgment and decision making. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 32,* 150–162.

Serwe, S., & Frings, C. (2006). Who will win Wimbledon? The recognition heuristic in predicting sports events. *Journal of Behavioral Decision Making, 19,* 321–332.

Scheibehenne, B., & Bröder, A. (2007). Predicting Wimbledon 2005 tennis results by mere player name recognition. *International Journal of Forecasting, 23,* 415–426.

Schooler, L. J., & Hertwig, R. (2005). How forgetting aids heuristic inference. *Psychological Review, 112*, 610–628.

Snodgrass, J. G., & Corwin, J. (1988). Pragmatics of measuring recognition memory: Applications to dementia and amnesia. *Journal of Experimental Psychology: General*, *117*, 34–50.

Snook, B., & Cullen, R. M. (2006). Recognizing national hockey league greatness with an ignorance-based heuristic. *Canadian Journal of Psychology, 60,* 33–43.

Tomlinson, T., Marewski, J. N., & Dougherty, M. R. (2011). Four challenges for cognitive research on the recognition heuristic and a call for a research strategy shift. *Judgment and Decision Making, 6*, 89–99.

Volz, K. G., Schooler, L. J., Schubotz, R. I., Raab, M., Gigerenzer, G., & Cramon, D. Y. von (2006). Why you think Milan is larger than Modena: Neural correlates of the recognition heuristic. *Journal of Cognitive Neuroscience, 18*, 1924–1936.