

## Introduction to the special issue: Coherence and correspondence in judgment and decision making

Philip T. Dunwoody\*  
Juniata College

In 2007, Kenneth Hammond published *Beyond Rationality: The search for wisdom in a troubled time*. In this book and in prior works, Hammond (1990; 1996) promotes the recognition and equal acceptance of two different classes of criteria for the assessment of human judgment and decision making (JDM). Coherence criteria are those that are based on normative standards of logic (or some other formal model) while correspondence criteria are based on the accuracy of predicting or judging empirical events. In his 1996 book, Hammond summarizes correspondence research:

Correspondence theory focuses on the empirical accuracy of judgments, irrespective of whether the cognitive activity of the judge can be justified or even described. Although correspondence researchers may be interested in describing the processes that produce the judgments, they rarely inquire into the question of whether these processes are *rational*, that is, conform to some normative, or prescribed, model of how a judgment ought to be reached. (p. 106)

Coherence research, he argued, is different:

Coherence theorists have opposite interests; they examine the question of whether an individual's judgment processes meet the test of rationality-internal consistency-irrespective of whether the judgment is empirically accurate. Indeed, no test of empirical accuracy may be available in principle or fact. Thus, for example, if a problem is offered to a subject that is susceptible to a solution by a standard statistical model, the coherence theorist first compares the subject's answer with that produced

by the statistical model, declares the answer to be correct or incorrect, tests (if possible) the process by which the answer is produced, and then evaluates the rationality of the cognitive process(es) involved. (p. 106)

Hammond argued that conclusions about human competence differ as a function of the criteria class used. He argued that when JDM is assessed against coherence criteria, humans often appear incompetent and irrational but, when JDM is assessed against correspondence criteria, humans appear adaptive or “ecologically rational” as Gigerenzer and Todd would say (1999).

In his recent book Hammond states that, “understanding the important field of human judgment cannot go forward, cannot eliminate the current disarray, without our acknowledging the role of coherence and correspondence” (Hammond, 2007, p. 225). This is a strong claim and one that deserves discussion and debate.

In 2007, I organized a symposium at the 23<sup>rd</sup> Annual International Meeting of the Brunswik Society to address Hammond's claim. Five of the papers in this special issue (Dawson & Gregory, 2009; Dunwoody, 2009; Mosier, 2009; Tape, 2009; Katsikopoulos, 2009) are based on presentations made at this symposium. Following the symposium Jonathan Baron, current editor of *Judgment and Decision Making*, and Robin Hogarth discussed the possibility of a special issue focused on coherence and correspondence. Baron then approached me about acting as guest-editor of the special issue and I happily agreed.

The first paper (Dunwoody, 2009) offers an overview of the terms coherence and correspondence. These terms come from the philosophy of truth literature and represent different ways to answer the question, “How do we know that a belief or judgment is true?” I apply these two terms to the field of JDM and argue that they should be refined to include intra and interpersonal coherence. I also argue that the third major philosophical theory of truth, pragmatism, is missing from Hammond's coherence/correspondence framework. Pragmatic criteria are those based on the organism's goals, and any framework of JDM criteria should include a category based on goal attainment.

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\*I am indebted to Kenneth Hammond for his important work on this topic (see Hammond, 1996, 2007, for more on these topics). Without his efforts, these concepts would be unknown to the vast majority of JDM researchers. I am also indebted to Jon Baron and Robin Hogarth for aiding me in putting together this special issue. Their collective professional seniority provided guidance in avoiding oversimplifications and making tough “editorial” calls. This special issue benefited greatly from their help. Address: Philip T. Dunwoody, Juniata College, 1700 Moore St, Huntingdon, PA, 16652. Email: dunwoody@juniata.edu.

Dawson and Gregory (2009) offer a brief historical perspective on these different criteria and how they have been used in science and medicine. They apply these terms to understanding two historical episodes; Darwinian evolution and Semmelweis's work on childbed fever. Tape (2009) also applies these terms to medicine and argues that many debates within medical science stem from the coherence/correspondence distinction. He argues that many treatments based on theory and logic (coherence criteria) persist despite correspondence evidence against them. Debate over the appropriate treatment can be better understood as a debate over the criteria of coherence and correspondence. Tape convincingly argues that medical science would be greatly improved if these terms were more widely known. Shaffer and Hulsey (2009) argue that research evaluating the effectiveness of patient decision aids has used both coherence and correspondence measures without explicit recognition of the concepts. Like Tape, they argue that the debate around the effectiveness of patient decision aids is better understood as a debate over the relevant criteria, coherence or correspondence. They argue that most research evaluating patient decision aids uses coherence criteria and that more research utilizing correspondence criteria is needed.

Katsikopoulos makes a similar argument for understanding the different criteria used in engineering decisions. He argues that different rules for making engineering decisions emphasize either coherence or correspondence but there is no explicit recognition of these terms. He also argues that an increase in coherence does not guarantee an increase in correspondence. All of the aforementioned papers argue that there is some debate over assessments that utilize coherence or correspondence criteria despite no explicit recognition of these concepts. All of the aforementioned papers also share the theme that the debate would be more readily understood and perhaps even resolved if coherence and correspondence were widely understood as distinct yet complementary criteria for assessment.

While Katsikopoulos argues that an increase in coherence does not necessarily lead to an increase in correspondence, Mosier (2009) argues that the modern aviation cockpit is engineered so that coherence is the primary strategy needed to achieve correspondence. She makes an important distinction between intuition and analysis as cognitive modes that can be used to achieve coherence, correspondence, or both. The distinction between analysis/intuition and coherence/correspondence is easily confused and Mosier helps clarify this important difference.

Weiss, Brennan, Thomas, Kirlik, and Miller (2009) continue with an examination of the relationship between coherence and correspondence by examining performance in two different tasks. First, they compare a variety of coherence based criteria, including the CWS

measure, in an addition task to see how different coherence criteria compare. Second, they compare different coherence criteria with correspondence criteria in a golf putting task. In this second task, they show a strong correlation between measures that assess coherence and correspondence criteria.

Ganzach (2009) examines research on numerical predictions using cue probability learning (CPL) to compare research traditions that have typically focused on coherence criteria, such as the "Heuristics and Biases" program, with those that have typically focused on correspondence criteria, such as Social Judgment Theory. He argues that participants shift strategies from initial use of bias-prone heuristics to more ecologically valid heuristics as they gain experience.

The eight papers in this special issue represent a significant contribution to the field of JDM research. They make a strong connection between philosophical theories of truth and the practice of JDM researcher. They make a convincing case for the utility of the coherence/correspondence distinction across the domains of engineering, medicine, science, aviation, and JDM. They raise intriguing questions for future research, such as: what is the precise relation between coherence and correspondence? what should be the role of pragmatism (goal achievement) in the assessment of JDM? My hope is that this special issue will increase discussion and awareness of the criteria we use to assess judgment and decision making and that more researchers will examine the same behaviors via multiple classes of criteria. The development and acceptance of a classification scheme for JDM criteria will help organize the main findings in the field as well as help stimulate new research.

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"Introduction to the special issue: Coherence and correspondence in judgment and decision making," Judgment and Decision Making, Society for Judgment and Decision Making, vol. 4(2), pages 113-115, March. Handle: RePEc:jdm:journl:v:4:y:2009:i:2:p:113-115. "The attraction effect in motor planning decisions," Judgment and Decision Making, Society for Judgment and Decision Making, vol. 10(5), pages 503-510, September. More about this item. Keywords. coherence; correspondence; judgment; decision making.; Statistics. Access and download statistics. Corrections. All material on this site has been provided by the respective publishers and authors. You can help correct errors and omissions. When we are making decisions, any initial anchor that we face is likely to influence our judgments, even if the anchor is arbitrary. That is, we insufficiently adjust our judgments away from the anchor. Framing. A final development is the application of judgment and decision-making research to the areas of behavioral economics, behavioral finance, and behavioral marketing, among others. In each case, these fields have been transformed by applying and extending research from the judgment and decision-making literature. Fixing Our Decisions. Ample evidence documents that even smart people are routinely impaired by biases. Early research demonstrated, unfortunately, that awareness of these problems does little to reduce bias (Fischhoff, 1982). Account for uncertainty assessments in complex decision-making context when data pose issues. Use the CM to analyze expert data and obtain answers to questions of interest. WEEK 3: Performance-based weights and the Decision Maker Learn how to aggregate expert opinion based on performance-based weights. Review other weighting schemes and evaluate them with respect to in-sample and out-of-sample validation techniques. Special attention will be given to biases and how to train experts to assess uncertainties. Optional modules about another SEJ approach (the IDEA protocol) will be provided for learners who are keen on learning about an alternative method.