

Returning to a New Home

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Keywords: Cognitive science; Editorial; Interdisciplinary; Basic research; Formalism

This issue of *Cognitive Science* marks the start of our partnership with Lawrence Erlbaum Associates (LEA). The journal has never been published by LEA before, but in many ways, our relocation feels like a homecoming. In 1976 Roger Schank approached Larry Erlbaum with the idea of forming a cognitive science journal. Mr. Erlbaum was highly receptive, and together with his partner Walter Johnson began publishing *Cognitive Science* in 1977 at the newly established Ablex Publishing Company. The first editors were Eugene Charniak, Allan Collins, and Roger Schank. The first Cognitive Science Society conference was chaired by Donald Norman at University of California, San Diego in 1978. In the intervening years, LEA has published the Annual Proceedings of the Cognitive Science Conference. Beyond this, LEA has been a major force for the advancement of cognitive science through the impressive collection of books and journals they have published in cognitive science. We are honored and delighted to be working with LEA. Lawrence Erlbaum, both the man and the company, has been exceptionally generous with their time, expertise, and support. Indeed, his contributions to cognitive science have been recognized twice by the Cognitive Science Society, as two independent governing boards have made him an honorary member of the society. He is the only two-lifetime member of the society, but this is fitting in light of his redoubled efforts to promote cognitive science. We have every expectation that the journal will flourish with LEA. Through resources provided by LEA, the Cognitive Science Society will be able to significantly grow, offering its members new services for reasonable dues. LEA is also committed to the timely production of issues, Cognitive Science Society's continued retention of copyrights, authors' right to disseminate their articles on their own Web sites, and continued growth of the journal.

Even though our publisher has changed, our central mission has not. Our aim is to provide an outlet for significant developments in the study of minds and other intelligent systems. This mission inherently involves interdisciplinary collaboration, and so we will continue our efforts to serve as a home to research that spans anthropology, computer science, education, linguistics,

neuroscience, philosophy, and psychology. Research that speaks predominantly to just one of these fields will be referred to specialized journals. We encourage submissions from scholars who wish to disseminate their research beyond their own discipline. The interdisciplinarity of the journal is a strength, not only because it fosters cross-fertilization, but also because it can provide converging constraints on a theory of mind that no field could provide by itself. Also, from a practical perspective, advances in educational reforms, automatic object recognition, user interface design, the treatment of neurologically impaired patients, machine translation, computerized speech production and recognition, real-world robotics, and information search techniques will only be achieved by cooperation across the subfields of cognitive science.

A final motivation for integrating the insights from several traditional disciplines is that it serves as an antidote for the increasing specialization of science and alienation of scientists. We have gone from an era when the only major scientific journals were *Nature* and *Science* to an era with specialized journals such as *Journal of Contaminant Hydrology* and *Journal of Shoulder and Elbow Surgery*, each an umbrella outlet for several distinct subspecializations. The image of increasingly specialized sciences has been emphatically painted by John Horgan in his 1996 book *The End of Science*. He argued that the age of fundamental scientific theorizing and discoveries has passed and that all that is left to be done is refining the details of theories already laid down by the likes of Einstein, Darwin, and Newton.

In contrast to this vision, many cognitive scientists have chosen to reverse this trend toward increasing specialization. They have instead pursued principles that govern any intelligent, adaptive system, whether it consists of neurons, integrated circuits, or collections of agents. We are in good company in this enterprise. Many of the most noteworthy advances of science have involved finding deep principles shared by superficially dissimilar phenomena. Finding biological laws that govern the appearance of both snails and humans (Darwin, 1859), physical laws that govern both electromagnetic and gravitational acceleration (Einstein, 1989), and psychological laws that underlie transfer of learning across species and stimuli (Shepard, 1987) are undeniably important enterprises.

Preserving this interdisciplinarity will be challenging. As Figure 1 shows, there is some danger of *Cognitive Science* becoming too dominated by psychology. In the journal's recent past, we have had strong representation from many mainstays of cognitive science, including learning, neuroscience, problem solving, language, reasoning, computational modeling, and representation. However, the presence of philosophy, anthropology, cognitive development, artificial intelligence, and machine learning seems sparser than is warranted by their historical influence on cognitive science. Monitoring the diversity of the journal and field is critical if we wish to cultivate future developments of general principles that govern intelligent systems in all of their guises.

I would like to highlight two other challenges that face cognitive science and *Cognitive Science*. First, we need to better integrate basic research and applications for the mutual benefit of each. Application without basic research is ad hoc and hard to translate to new situations. Basic research without application misses opportunities to become more sophisticated by considering the richness of the real world. We look forward to receiving more submissions that feature applications built on top of solid basic research foundations. Second, we need to promote research that employs powerful formal methods, but formal precision is not sufficient. Formalism without substance is mere symbol pushing (I am reminded of Saul Gorn's quip that a formalist is somebody who cannot understand a theory unless it is meaningless.) We must also

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