THE NEWSLETTER

Institute of Cognitive & Decision Sciences•http://hebb.uoregon.edu•University of Oregon•Eugene•(541)346-4941
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ORBELL ELECTED DIRECTOR

John Orbell has been elected the new director of the Institute of Cognitive and Decision Sciences. John is a faculty member in the Department of Political Science whose special areas of interest are rational choice and modern political theory; experimental methods; evolutionary psychology; cooperation and trust. A graduate of University of Auckland in New Zealand, John received his Ph.D. from University of North Carolina, Chapel Hill. He was assistant professor at Ohio State University, Columbus before coming to Oregon in 1967. John was elected by members of the Institute and appointed by the Vice Provost for a three year term beginning July 1, 1998.

The Institute was started in 1987 and Douglas Hintzman served as the first director. Michael Posner served as director from 1989 to 1995 and Sarah Douglas of the Computer Science Department served as director from 1995 through 1998. We welcome John as the fourth director of the Institute.

Elected to serve with John Orbell are the four members of the executive committee; Mark Johnson, Philosophy, Holly Arrow, Psychology, Bertram Malle, Psychology and Terry Takahashi, Biology.

FROM THE DIRECTOR.....

An institute is only justified if it produces interaction effects, multipliers that would not have happened otherwise within a university's separate departments. Because overhead dollars generated by members of the Institute of Cognitive and Decision Sciences are not fed directly back to the Institute (but only indirectly, through a yearly allocation from overhead funds), there is no simple *dollar* figure we can point to as a measure of our contribution to the University. To get an idea of this Institute's impact, therefore, we need to look at how the *thinking* of Institute members has been influenced by their participation in the activities that it supports.

So I'll get personal. I've always followed problems that seemed interesting to me, but that tactic has made it increasingly difficult to provide a satisfactory *disciplinary* answer to the question: "What kind of political science do you do?" Since tenure, I have not worried much about the adequacy of my answers, but there remains the problem of finding people who share my—from a disciplinary perspective—oddball interests.

In the context of the Institute I've found Tom Givón and Larry Sugiyama to talk with about evolution, Holly Arrow and Mick Rothbart to talk with about group processes, Bertram Malle to talk with about interpersonal meaning, Bill Harbaugh and Misha Myagkov to talk with about rationality and human behavior—and, of course, many others. Further, I've come to understand that all those actively involved with the Institute are also following problems that take them to the boundaries of their particular disciplines, confronting to varying degrees the same disciplinary problem that I confront. And I know, as a matter of *fact*, that my thinking about what interests me (and what *should* interest me) has been significantly influenced by all of these people. Those are important interaction effects, things that wouldn't have happened absent the Institute.

I am confident that my experiences are duplicated by those of many others. That is the only way to explain the energy that is presently being put into the Institute. We all know of the rapid changes in the cognitive and decision sciences, and we all recognize that the old disciplinary categories are increasingly irrelevant to the substance of what is going on. The critical thing for an institute such as ours is that it continues to be a place where disciplinary misfits—like me—can find other disciplinary misfits to talk with.

John Orbell, Director
Institute of Cognitive and Decision Sciences

Report on 1998 Meeting on Trauma & Cognitive Science

Jennifer J. Freyd

Traumatic events such as rape, childhood abuse, battering, and war often have profound impacts on the cognitions, feelings, and experiences of those who live through these events. The impact of traumatic events also reverberate throughout whole communities and societies (as we experienced in this community recently with the tragic shootings at Thurston High School). What's more, a very large number of people and societies are impacted directly or indirectly by profoundly traumatic events. Understanding the nature of trauma and traumatic stress is thus a fundamental challenge for psychology and related disciplines.

Both individuals and larger social groups may be profoundly altered by traumatic exposure in a number of ways. One ubiquitous and challenging form of profound alteration has to do with our knowledge of trauma — our attention, perception, and memory for trauma. Over and over we see that individual and collective awareness and memory for traumatic events is a deeply perplexing and almost slippery topic; to raise the topic of interpersonal trauma (or large-scale societal traumas like the Holocaust or war-related-rape) is to raise the question of knowledge and belief. Did this event happen? If so, what happened? Do we remember it later? If so, what sort of memory do we have? How does our memory and awareness for traumatic events and even "mundane" events change as a consequence of traumatic exposure? What impact does memory and awareness of trauma have on healing and prevention?

The challenge of understanding memory and awareness for trauma requires a truly cross-area approach in which knowledge from various fields is brought to bear on these complex and important issues. Increasingly scholars from psychology and related fields are once again seeing the fundamental importance of understanding memory and awareness of trauma (academic awareness of the very topic of trauma varies over time, in part as a function of political and social movements). In July I had the pleasure of contributing towards this current communal effort by directing the 1998 Meeting on Trauma and Cognitive Science, an international conference held at the University of Oregon. I am indebted to many able assistants including Anne DePrince of the UO and Chris Brewin of the University of London. I am particularly indebted to Vonda Evans, Institute Secretary, for her enormous help with this conference. I am also deeply grateful to the Institute of Cognitive and Decision Sciences, the Center for the Study of Women in Society, and the Department of Psychology for co-sponsoring the Meeting.

The 1998 Meeting on Trauma and Cognitive Science was a particularly exciting and satisfying conference because it involved creative and enthusiastic bridging between cognitive, developmental, neuroscience, and clinical psychologists, with a focus on the interactions between information processing and traumatic experience. The presentations were rich in empirical data and new conceptualizations.

About 150 people attended the Meeting presentations on July 17, 18, and 19 in room 100 Willamette. We had a mixed - but well prepared -audience. Attendees included faculty, graduate, and undergraduate students from the University of Oregon, clinicians and other visitors from Oregon, the regions, and even other states and countries. Professor Don Tucker of the Institute and President Dave Frohnmayer gave gracious and thought-provoking welcome speeches to the presenters and audience members.

Cognitive science was well represented at the meeting. Over half of the presenters would probably consider cognitive psychology their primary discipline. For instance, Jonathan Schooler, Michael Anderson, and John Morton presented excellent talks on cognitive models of disruptions in memory for trauma. Kathy Pezdek and Ira Hyman presented data and theory on the role of suggestibility in accuracy for traumatic memories. Douglas Bremner of Yale University presented neurological data showing similar changes in hippocampal structure for some victims of childhood sexual abuse as previously found for some combat veterans. Robyn Fivush of Emory University discussed social influences on children's' memory for trauma. Bessel van der Kolk of Boston University presented an intellectual history of traumatic stress studies as well as new data on the neurobiology of trauma. I don't think there was a single presentation out of the 14 that failed to excite the audience. I know I have never had the experience of sitting for so long, through so many talks, and remaining engaged and stimulated throughout.

There is no denying that cross-area work is hard and of course the topic of trauma is very challenging to both our intellectual and emotional resources. Nonetheless, I believe that this meeting will prove to have been formative in this emerging area of trauma and cognitive science. While more questions were raised than answered, the meeting propelled us and inspired us in the important task of understanding issues that are of deep importance to humankind. We learned that the precision and rigor of scientific and scholarly approaches, combined with compas-

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Trauma Meeting Report

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sion and attention to lived experience, offers great promise for the study of trauma. It was truly an honor to be part of this event and I am deeply grateful to the Institute and the University of Oregon for supporting this event.

Editorial Note: Please visit the conference web site at http://dynamic.uoregon.edu/traumaconf.html. There you will find the schedule of talks, our meeting mission statement, short biographies of our speakers, and also an order form for purchasing the set of audio tapes for the meeting.

BERGER VISITS INSTITUTE

Andrea Berger, a psychologist from Israel, has recently joined the Temperament Lab, and is collaborating with Mary Rothbart and Mike Posner on a number of studies investigating the development of attention. Andrea Berger is a research scientist at the Behavioral Sciences Department of the Ben Gurion University in Negev, Israel. She has conducted a series of studies examining attentional skills in adults, examining endogenous and exogenous orienting and inhibition of return, collaborating with Dr. Avishai Henik. In addition, Andrea was involved in clinical neuropsychological assessments with Dr. Alisia Osimani at the Kaplan Medical Center. She is currently investigating vigilance in children and plans to evaluate the relationship between Stroop and spatial conflict tasks and anterior activation. Upon her return to Israel, Andrea plans to evaluate the use of spatial conflict tasks with children born prematurely, and at risk for Attention Deficit Disorder.

Intentionality: An Interdisciplinary Conference

On October 2 and 3, 1998, the Institute hosted an interdisciplinary conference on Intentionality, organized by Dare Baldwin, Lou Moses, and Bertram Malle of the Department of Psychology. The conference brought to Eugene a world-class lineup of speakers from developmental, social, and cognitive psychology as well as philosophy, primatology, and legal scholarship. Three invited addresses and four working sessions offered reports on cutting-edge work and highly stimulating discussion.

The conference was based on the assumption that humans from early infancy on think about other human beings, interpret the meaning of their actions, and reason about the motivations underlying them. This ability has been called their "theory of mind," "folk psychology," or "naive theory of action." Little is naive, however, about this marvelous capacity, for it represents a complex and highly refined conceptual framework. The recent decade has seen an explosion of research and thinking on this framework, a core element of which is the concept of intentionality. Using this concept, people distinguish between fundamental types of behavior (unintentional vs. intentional), infer others' intentions even before they act, explain a completed action with reference to the agent's beliefs and desires, and evaluate the social worth of an action via the related concept of responsibility. These various functions of intentionality also provided a natural organization of the conference into four broad topics.

Desires, Intentions, Intentionality

In the first working session, researchers clarified elements of people's concept of intentionality — especially the notions of desire and intention. Janet Astington (University of Toronto) suggested that children's linguistic competence of distinguishing between *try*, *mean*, and *want* reflect and accelerate their capacity to reason with these concepts but that preschoolers may well conflate desire, intention, and prediction (e.g., "I'm gonna be a truck driver").

Similarly, Lou Moses (University of Oregon) argued that young 3-year-olds have a primitive desire/intention concept that is essentially a mixture of the two adult concepts but still allows children to use the word *try* in meaningful and socially relevant ways. Only when children begin to develop a concept of belief can they understand the unique constraints embedded in the intention concept but absent in the desire concept.

Ray Gibbs (UC Santa Cruz) offered the provocative thesis that intentions may not always be private events but can be socially emergent and socially negotiable. To support his thesis, he provided conversational data in which intentions seem to be negotiated by speaker and listener. Several discussants took issue with the claim that intentions themselves are negotiable. They argued that what is negotiable are meanings of utterances, whereas the speaker's intention may still be a private event. Another strand of Gibb's argument posed the question whether the "we-intentions" of a group (e.g., a department faculty's intention to hire somebody) can be thought of socially emergent because such intentions do not reside in any one person's head alone. Despite arousing skepticism in some researchers, the thesis was considered worthy of empirical test — exploring how people treat we-intentions of their own groups as well as those of others' groups.

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Detecting Intentions

An invited address by Henry Wellman (University of Michigan) focused on the question of what might be the earliest precursors of children's concept and perception of intention. In this domain of early infancy, research is pushing the limits of the experimental methodology by testing infants as young as 5 months for their construal of simple behavior in terms of the agent's desire/intention. Data suggest that at least from 12 months on, infants are sensitive to the object-directedness of grasping in that their attention is undisturbed by variations in the grasping movement but disturbed by variations in the object grasped.

A working session on the topic of intention detection offered further research and theoretical discussions. Amanda Woodward (University of Chicago) presented data on infants at 12, 9, and 5 months, showing evidence of their ability to process the goal of specific acts (e.g., touching of a box with the goal of taking out a ball). Andrew Meltzoff (University of Washington) reviewed results on children's ability to recognize goals of incomplete actions (initiated by others) and concluded that only from 12 to 15 months on do infants show such reliable recognition, evidenced by their ability to complete the relevant action themselves. Jodie Baird (University of Oregon) presented an experiment on the adult's parsing of ongoing behavior, suggesting that intentions may be natural units of parsing that are both reconstructed from behavior attributes and inferred from background knowledge. All three presentations shared the goal of describing the continuity between infant and adult capacities of intention detection and of identifying the "starting package" newborns have. Daniel Povinelli (New Iberia Research Center) offered various interpretations of the early-infant data, contrasted them with primate data, and started off a lively discussion on innate mechanisms and the possibility of acquiring an intention concept from experiential data alone.

In an invited address entitled "Mind-Matching," Alvin Goldman (University of Arizona) described what is more commonly labeled "simulation theory" — the theoretical position that much of infants' and adults' mental state ascription is based on the perceiver's simulation of the other person's mind states, based on his or her own mind states in a similar situation. Goldman offered arguments for this position and against the predominant theoretical viewpoint ("theory theory"), which assumes — in its strictest version — that mental state ascription is a theoretical process that does not rely on the perceiver's own experiences.

Two intriguing findings from the earlier working session on intention detection, however, might speak against this strict version of theory theory. Woodward found that infants' progress in grasping is correlated with their detection ability for grasping intentions. Similarly, Meltzoff reported that the earliest form of imitation in newborns is likely based on cross-modal representation links, in which perceptions of behavior patterns are matched up with stored representations of behavior production schemas. Goldman offered related data collected by Italian researcher Rizzolatti and colleagues, suggesting that monkeys have so-called mirror neurons that respond both when the monkey performs a certain goal-directed action and when the same monkey observes another monkey performing that type of action.

Intentionality and Explanations

The development of mental concepts and mental talk leads to a complex differentiation of explanations in children and later in adults. Angeline Lillard (University of Virginia) explored potential differences in how children from Thailand, rural, and urban U.S. explain good and bad behaviors and what age profile these variations in explanations might show. Her data suggested that urban U.S. and Thai children between ages 7 and 11 differed very little in their explanations, all citing facts about the agent more frequently than facts about the situation, whereas rural U.S. children cited more often situational facts and interpreted the explanation task frequently as one of moral judgment.

Bertram Malle (University of Oregon) presented a model of how people explain behavior that distinguishes between four modes of explanation (among them cause explanations and reason explanations). The model also identifies the psychological functions of each mode and leads to concrete rules of coding naturally occurring explanations. Malle argued that an accurate description of people's complex folk explanations of behavior must acknowledge both the concepts that underlie people's explanations (e.g., intentionality) and the linguistic structures in which explanations — especially reason explanations — are expressed.

In two separate contributions, Fred Schueler (University of New Mexico) and Charles Kalish (University of Wisconsin) underscored the distinct quality of reason explanations by pointing to the assumptions of purpose (acting in order to) and choice (acting out of free will). Both assumptions are crucial to people's concept of intentionality and their practice of giving reason explanations and have only recently been recognized in psychological research.

Alison Gopnik (UC Berkeley) discussed the pos-

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sible functions of explanations in general. Why would minds evolve the capacity to explain things? The common answer is that explanations are one function of theoretical activity in an organism and allow the organism to improve adaptation much like predictions do. Gopnik's alternative view is that explanations may be the phenomenological correlate of theoretical activity, signaling that the important mental processes (i.e., theorizing) are indeed in operation and rewarding the organism, via the pleasure of finding an explanation, for engaging in those processes.

Intentionality and Responsibility

Finally, the conference branched out into topics that include but go beyond intentionality, such as responsibility and moral judgment. In the final invited address, Bernard Weiner (UCLA) presented a comprehensive model of how perceivers arrive at responsibility judgments. In this complex process, people seem to apply the concept of controllability to outcomes (e.g., illnesses, achievements) and the concept of intentionality to behaviors, combining them into a moral assessment of the agent and leading to feelings of anger or sympathy as well as inclinations to either help or hurt the agent.

Michael Morris (Stanford University) reviewed a series of studies that explored potential cultural differences in responsibility assignments and explanations for both individuals and groups. He argued that U.S. social perceivers focus on the personal attributes governing individual behavior but on the contextual factors, governing group behavior. By contrast, Chinese social perceivers focus on the contextual factors governing individual behavior but on the personal attributes, governing group behavior.

Leonard Kaplan (University of Wisconsin) discussed several factors that influence responsibility assignments, including judgments of intent, feelings of justice and the relationship with the other person. He illustrated his arguments through examples from literature, law, and ethics, putting questions of social perception into the larger context of societal organization.

Alfred Mele (Davidson College) contrasted the conditions under which people ascribe intentionality to the conditions under which people assign responsibility. Through the use of various thought experiments, Mele argued for the position that moral considerations (e.g., the gravity of an act) should not, and usually do not, alter a perceiver's judgments of intentionality. The subsequent lively discussion highlighted the vague boundaries of folk concepts such as intentionality and the tension that sometimes exists between a philosophical analysis and an empirical assessment of people understanding and use of a concept.

Cognitive Neuroscience Society *Presents the Sixth* Annual Meeting And Call for Abstracts April 11-13 1999 Washington DC

Cognitive Neuroscience Society marks the Sixth anniversary as a Society. And as such we cordially invite you to attend the annual meeting. Many of our colleagues helped us fine tune our meeting organization and procedures by filling out our Survey after the 1998 meeting. We appreciate all of your suggestions and hope to keep the dialog going, for further improvement. We are happy to announce that we are able to implement some of those suggestions for this meeting. As with last year, CNS in conjunction with MIT Press will be publishing the Meeting Program as a supplement of the Journal of Cognitive Neuroscience. We will also be providing electronic abstracts on a website, URL to be announced.

Due to popular demand, time for the poster sessions has been expanded. We have also added a forum for students to present their research "Graduate Students Presents".

We urge you to make your reservations early in order to ensure your accommodations at the Capital Hilton.

For information, contact:
Tara Miller (603) 646-1189
Email: cns@dartmouth.edu.
web site: http://www.dartmouth.edu/~cns

Meeting Schedule
Sunday, April 11-Tuesday, April 13
8:00-5:30 pm Exhibits on Display
8:30-10:00 am Morning General Session: Symposium
10:00-12:00 pm Morning Poster Session
1:30-3:00 pm Afternoon General Session: Symposium

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3:00-5:00 pm Afternoon Poster Session
5:00-6:00 pm Sunday: Miller Lectureship
Monday: Graduate Students Presents
6:00-7:30 pm Sunday: Reception

1999 Annual Meeting Symposia
Perceptual Learning: Low-Level, High-Level, Or A Bit Of Both?
Michael Tarr, Ph.D., Chair *Brown University*
Manfred Fahle, Ph.D. *City University, London*
Vincent Walsh, Ph.D. *University of Oxford*
Philippe G. Schyns, Ph.D. *University of Glasgow*
Richard Zemel, Ph.D. *University of Arizona*

Perceptual learning may account for complex phenomena, including those that are often thought to be cognitive. Recent research on perceptual learning includes many different levels of analysis, from electrophysiology to neuroimaging to computation. Fahle finds that top-down processes influence learning in simple visual discrimination tasks where it is generally held that learning is mediated by "early" mechanisms. In contrast, Walsh concludes that sensory processes can account for learning in the processing of complex visual stimuli where cognitive strategies are typically implicated. Schyns suggests an interaction, demonstrating that high-level categorical judgments on faces influence their low-level perception. Zemel and Behrmann consider learning processes, presenting a model in which perceptual representations are learned from the statistical structure of inputs without feedback. Finally, Tarr and Gauthier use fMRI to examine how temporal cortex is fine-tuned as perceptual learning occurs.

Making Sense of Sentences: The Brain Circuitry for Sentence Processing
Tamara Swaab, Ph.D., Chair *Duke University*
Helen Neville, Ph.D. *University of Oregon*
Peter Hagoort, Ph.D. *Max Planck Institute for Psycholinguistics and University of Nijmegen*
David Caplan, M.D., Ph.D. *Massachusetts General Hospital*
Willem Levelt, Ph.D., Discussant *Max Planck Institute for Psycholinguistics*

Only the human species is capable of combining abstract structural and semantic cues to comprehend. This makes the study of sentence processing an interesting and challenging endeavor. Psycholinguistic studies have provided us with detailed models of the types of constraints that are necessary to make sense of sentences. Neurolinguistic studies, on the other hand, have identified areas in the brain that may be involved in sentence processing. Very recently, researchers have begun to use brain imaging techniques to help identify the brain circuitry for syntax and semantics. Despite all these sources of information, it is still largely a mystery how our brain solves sentences. In this symposium, evidence from development, psycholinguistics, electrophysiology, brain imaging, and neuropsychology is integrated to help identify the cognitive and neural architecture of sentence processing.

Cognitive Neuroscience Insights into the Aging Brain
Patti Reuter-Lorenz, Ph.D., Chair *University of Michigan*
Ulman Lindenberger, Ph.D. *Max Planck Institute for Human Development*
John Gabrieli, Ph.D. *Stanford University*
Edward Smith, Ph.D. *University of Michigan*
Diane Swick, Ph.D. *UC Davis*

The mechanisms underlying age-related cognitive decline are largely unknown. A major challenge in aging research is to distinguish the contributions of focal, localized dysfunction versus more diffuse degenerative mechanisms. This symposium will focus on the use of converging cognitive neuroscience methods to investigate focal and diffuse mechanisms of cognitive aging. Behavioral, neuropsychological and neuroimaging evidence will be presented linking cognitive decline to dedifferentiation (decreased specialization) of neural systems across the lifespan. The relationship between signs of dedifferentiation and neural recruitment as a compensatory mechanism implemented by the aging brain will be explored. These issues will be contrasted with evidence for more focal dysfunction of executive processes and memory, as evidence by neuroimaging, and electrophysiological studies of normal elderly and patients with frontal lobe damage.

Linking Brain Circuits to Behavior and Cognition
Stephen Grossberg, Ph.D., Chair *Boston University*
Michael I. Posner, Ph.D. *University of Oregon*
Joseph LeDoux, Ph.D. *New York University*
Daniel Bullock, Ph.D. *Boston University*

One of the most important problems for cognitive neuroscience is to bridge the gap between brain and behavior. In order to do this, cognitive neuroscientists need to know: What are the organizational principles that govern the designs of different parts of the brain? How are these organizational principles realized as brain circuits whose emergent properties govern adaptive behaviors of various kinds? This symposium will present recent neural models, and supportive data, that bridge the gap from brain circuitry to the emergent behaviors that they govern. The talks begin with perception, and then move on to cognition, emotion, and action. This symposium will hereby sample some of the

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most important brain processes that are engaged within a typical behavioral cycle, and will illustrate how these processes may be better understood using recent modeling principles, concepts, and mechanisms.

Transcranial Magnetic Stimulation (TMS): a non-invasive tool to advance understanding of human cognitive processes

Alfredo d'Alfonso, M.D., Chair *University of Utrecht*
Alvaro Pascual-Leone, M.D., Ph.D. *Harvard Medical School*
Jordan Grafman, Ph.D. *National Institute of Neurological Disorders and Stroke*
Vincent Walsh, Ph.D. *University of Oxford*
Charles M. Epstein, M.D. *Emory University School of Medicine*

In this symposium evidence will be presented that magnetic stimulation of the brain is a useful technique to increase our knowledge of the human brain. Alvaro Pascual-Leone introduces the principles of Transcranial Magnetic Stimulation (TMS) and the use of TMS in cognitive neuroscience. Jordan Grafman will describe the use of TMS in clinical and research application of memory and learning. Vincent Walsh will explain why TMS gives us a better understanding of the parietal cortex in visual search. Charles Epstein shows us that TMS studies on language bring us new insights in how language is organized in the brain, that doesn't match with classical models of language. Finally we will elaborate on the use of TMS in the procedure to examine striate and extrastriate cortex. We will discuss confounding factors and the methodological difficulties in finding the location. Confounding factors, such as muscle contraction and unintentional stimulation of the facial nerve, creates problems for interpreting the data.

Interpreting Neural Activity

Jennifer Groh, Ph.D., Chair *Dartmouth College*
Terry Stanford, Ph.D., *Wake Forest University School of Medicine*
Ranulfo Romo, Ph.D. *Instituto de Fisiologia Celular, Universidad Nacional Autonoma de Mexico*

How is information encoded in neural representations, and how is this information interpreted by the brain areas that receive these signals as inputs? These questions form the theme of this symposium. Microstimulation is proving to be a remarkably useful tool in exploring the read-out of neural representations. Microstimulation within the primary somatic sensory cortex of awake monkeys produces a percept of flutter whose frequency is correlated with the stimulation frequency (Romo). The frequency of microstimulation in the superior colliculus influences the speed of the electrically evoked saccade whereas the location of stimulation controls saccade vector (Stanford). Together with related microstimulation experiments in MT, this latter result leads to a model for the neural algorithm underlying the read-out of neural maps (Groh).

SUBMITTING TO THE NEWSLETTER

When preparing an article for submission to The Newsletter that is more than a page long, please include your disk. It is possible to transfer both IBM and Apple data onto the Macintosh. Formatting suggestions (to save time after transferring, as well as to assure the formatting that you want): IBM —save in or convert to DCA format if possible, otherwise save as text or ASCII; Apple—Appleworks Word Processor files; and of course, Macintosh (Microsoft Word, Microsoft Works or MacWrite) can be accepted. For any questions on formatting, consult your reference manuals. Also, be sure to include the name of the relevant document(s) on the disk. You can give these disks either to that month's feature editor, or directly to Vonda at the institute. It will be returned as soon as it's been transferred, which, in some cases, can be a matter of only minutes.

The Newsletter
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No. 97-2 “Brain Mechanisms of Cognitive Skills”
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No. 98-7 "On the Co-Evolution of Language, Mind and Brain"
by T. Givón

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by Mckay Sohlberg, Karen McLaughlin, Antonella Pavese, Anke Heidrich and Michael Posner

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