Thursday, September 13, 2012  
Dr. Geoffrey Aguirre, (aguirreg@mail.med.upenn.edu)  
University of Pennsylvania  
Neurology Department

Thursday, September 27, 2012  
Dr. Jesse Snedeker, (snedeker@wjh.harvard.edu)  
Harvard University  
Department of Psychology

Monday, October 1, 2012  
Dr. Steve Palmer, palmer@cogsci.berkeley.edu  
University of California, Berkeley  
Psychology & Cognitive Science Department

Thursday, October 25, 2012  
Dr. Jon Sprouse, jsprouse@uci.edu  
UCA, Irvine  
Department of Cognitive Science

Thursday, November 8, 2012  
Dr. Marcin Morzycki, morzycki@msu.edu  
Michigan State University  
Linguistics, German, Slavic, Asian, African Language

Thursday, November 29, 2012  
Dr. Charles Yang, charles.yang@babel.ling.upenn.edu  
University of Pennsylvania  
Department of Linguistics, Computer Science, and Psychology

Thursday, December 6, 2012  
Dr. Jessica Cantlon, jcantlon@rchi.rochester.edu  
University of Rochester  
Brain and Cognitive Sciences
Thursday, March 28, 2013 (presenting with Philosophy Dept. on 3/29/2013)
Dr. Sarah Jane Leslie, (sjeslie@princeton.edu)
Princeton University
Department of Philosophy

Thursday, April 4, 2013
Dr. Jack Gallant, (gallant@berkeley.edu)
UC Berkeley
Psychology Department

Thursday, April 11, 2013
Dr. Chris Baker, (bakerchris@mail.nih.gov)
NIH, National Institute of Health

Thursday, May 2, 2013
Dr. Naomi Feldman, (nhf@umd.edu)
University of Maryland
Department of Linguistics
Thursday, September 13, 2012
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Geoffrey Aguirre
University of Pennsylvania
Neurology Department

“What is the relationship between the perceptual similarity of sensory experiences and the similarity of the neural responses that encode them? In a series of experiments we have studied the neural representation of objects and shapes in human visual cortex using this question as a guiding principle. With continuous carry-over, functional MRI (Aguirre, Neuroimage, 2007), we can measure the similarity of evoked neural responses to objects on either a focal (within voxel adaptation) or distributed (across voxel pattern) spatial scale. For simple two-dimension shapes and for faces we have found that perceptual similarity predicts neural response similarity, but that the visual information represented at focal and distributed scales differ, both within and across visual areas. The precise metric properties of perceptual similarity may further predict the stimulus axes along which these representations are organized. We hypothesize that integral perceptual axes (perceived as a composite with a Euclidean distance metric) are represented by populations of neurons that are conjointly tuned to the axes, while separable axes (defined by a rectilinear metric) are represented by independently tuned neural populations. Using fMRI we may measure the geometric properties of neural adaptation to distinguish between conjoint or independent tuning for a population of neurons. For two-dimensional shapes, faces, and object textures we find that neural tuning within ventral visual areas reflects the metric properties of perception.

Website: http://cogsci.jhu.edu/events
Thursday, September 27, 2012
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Jesse Snedeker
Harvard University
Psychology Department

“Fast, smart and out of control: the development of online language comprehension”

In the past ten years there has been an explosion of research on children’s real time language comprehension. Young children, like adults, interpret language in a cascaded fashion, with processes at higher levels of linguistic analysis beginning before processes at lower levels are complete.

Our work demonstrates that children’s structural processing is smart is two respects. First, preschoolers use multiple sources of information to constrain parsing and converge on the most probable analysis of syntactically-ambiguous utterances. Second, children employ abstract mappings between syntax and semantics to resolve ambiguities in verb argument structure. These mappings can be primed allowing us to explore both their scope and how they develop over time.

But young children differ from adults in several ways: they make poorer use of context, are less adept at ruling out competing interpretations, and have difficulty revising their interpretation in light of conflicting evidence. One is tempted to conclude that changes in language processing during the school years largely reflect the development of control processes. Our recent work on autism explores this conjecture, but also provides a window into the role of social cognition in pragmatic processing.

Website: http://cogsci.jhu.edu/events
Monday, October 1, 2012
Refreshments at 3:45 pm – Presentation at 4:00 pm, room #111 Krieger Hall

Stephen E. Palmer
U.C. Berkeley
Psychology and Cognitive Science

“Human Color Preferences: An Ecological Approach”

Abstract: Color preference is an important aspect of human behavior, but little is known about why people like the colors they do. Recent results from the Berkeley Color Project (BCP) provide an answer. I will report measurements of preferences among 37 colors and the fit of several models to these data, including ones based on physiology (cone contrasts), phenomenology (color appearances and color-emotion associations), and ecological preferences (Palmer & Schloss's ecological valence theory (EVT), which is based on the statistics of people’s emotional reactions to colored objects. The EVT postulates that color serves an evolutionary 'steering' function, analogous to taste preferences, biasing organisms to approach advantageous objects and avoid disadvantageous ones. It predicts that people will tend to like colors to the extent that they like the objects that are characteristically that color, averaged over all such objects. The EVT predicts 80% of the variance in average preference ratings from the Weighted Affective Valence Estimates (WAVEs) of correspondingly colored objects, much more variance than any of the other models. I will also describe how hue preferences for single colors differ as a function of object-type, gender, expertise, culture, social institutions, and perceptual experience, and how many of these effects might be explained by the EVT.
Thursday, October 25, 2012
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Jon Sprouse
University of California, Irvine
Department of Cognitive Sciences

“Experimental Syntax and the Cognitive Neuroscience of Language”

Abstract: In this talk I will review several studies that were designed to explore the role that formal syntactic experiments (i.e., experimental syntax) can play in the development of an integrated theory of the cognitive (neuro-)science of language. While it goes without saying that formal experiments expand the empirical base of syntactic theory, I will argue that they also help to expand the set of questions that syntacticians can ask about the mentalistic commitments of syntactic theories. I will attempt to provide concrete examples of this by reviewing studies on the reliability of acceptability judgments, the role of working memory in island effects, the acquisition of island effects, the cross-linguistic variation of island effects in Italian and English, the induced (time-frequency) EEG response to basic syntactic violations, and the role of Broca's area in processing two types of long-distance dependencies (wh-questions and cataphora).
Thursday, November 8, 2012
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Marcin Morzycki
Michigan State University
Linguistics, German, Slavic, Asian & African Languages

“Degrees as Kinds”

Paradoxically, perhaps, one of the perennial questions in the semantics of degree expressions is what precisely degrees are: equivalence classes (Cresswell 1976, others), or points on an abstract scale (Seuren 1973, von Stechow 1984, lots of others), or intervals (Kennedy 1997, Schwarzschild & Wilkinson 2002, others), or tropes (concrete instantiations of properties; Moltmann 2009). This talk approaches this familiar question from an unfamiliar empirical angle. Building on observations in Landman & Morzycki 2003, I’ll show that degree morphemes in many languages have homophones in other categories that manipulate kinds or manners. In English, these include _as_ (_as tall, _behave as he did, _such people as him_) and _how_ (_how tall, _how did he behave?_). Other languages provide even clearer examples. These connections are too deep to be accidental, and they are not expected on standard assumptions about the ontology of degrees. To make sense of the kind-manner connection, Landman & Morzycki propose that manners are Carlsonian kinds of events. The aim of this talk is to develop a means of representing degrees as kinds of states, and to use it to provide a cross-categorial compositional semantics for a number of these expressions. One unexpected consequence of this is that equatives emerge as a special case of a more general phenomenon (something recently suggested in another way in Rett 2011). This all provides evidence for a view of degrees on which they are significantly more ontologically complex than is standardly assumed.


Rett, Jessica. 2011. The Semantic Significance of Similatives. Ms, UCLA.


Website: http://cogsci.jhu.edu/events
Thursday, February 28, 2013
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Charles Yang
University of Pennsylvania
Department of Linguistics, Computer Science & Psychology

“Online, incremental, unsupervised and nonparametric”

The learning of vowels is a typical "signal to symbol" problem in language, where the instances of linguistic data are distilled into abstract categories. Sophisticated machine learning approaches have yet matched the ability of infants, who at six month can acquire vowels from highly variable acoustic samples very quickly.

Perhaps equally surprisingly, vowel categories can also be lost very quickly. The distinction between the vowels in "cot" and "caught" can be lost, or merged, in a few years once children come into sustained contact with a population that does not maintain this distinction. A mathematical model of language change can be established to predict the conditions of vowel category loss (e.g., the frequency of certain words that mark vowel distinctions).

We view vowel learning as language change. Upon the presentation of a new vowel token, the learner may create a new vowel category or merge/lose it to an existing category. The decision follows the calculus of language change, and is supported by findings in infant speech perception and development. Simulations on the Hillenbrand vowel dataset (JASA 1995) show that the model, which is online, incremental, unsupervised and nonparametric, outperforms both supervised and parametric models of clustering methods.
Thursday, March 28, 2013
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Sarah Jane Leslie
Princeton University
Department of Philosophy

“Generics and Generalization”

Generics are sentences such as "tigers are striped" and "ravens are black". They are truth conditionally complex: e.g. "ducks lay eggs" is judged true while "ducks are female" is rejected as false, despite the fact that only female ducks lay eggs. Similarly, "mosquitoes carry malaria" is accepted but "books are paperbacks" is rejected, yet over 80% books are paperbacks, while less than 1% of mosquitoes carry malaria. Despite their seeming complexity, I argue that generics give voice to cognitively primitive generalizations, while quantified statements give voice to more cognitively sophisticated and taxing ones. Further, the puzzling truth-conditional behavior of generics can be explained by an empirically plausible characterization of these primitive generalizations. I present recent experimental evidence in support of these hypotheses.
Announcing a talk by Tao Gong from the Linguistics Dept at the University of Hong Kong. Prof. Gong conducts computational and experimental research on language evolution and cognition; previously he worked with Bernard Comrie at the Max Planck Institute for Evolutionary Anthropology and Simon Kirby at the University of Edinburgh. A sample of some of his more recent papers is appended below the talk abstract.

**Wednesday, April 3, 2013**
*3:00 - 4:00 pm, room #134A Krieger Hall*

**Dr. Tao Gong**
Department of Linguistics
University of Hong Kong

“*Coevolution Explanation to Level-difference of Joint Attention between Humans and Nonhuman Apes*”

Joint attention is important to social, communicative activities including language, and humans exhibit a considerably high level of joint attention compared to non-human primates. I propose a coevolutionary hypothesis towards this degree-difference of joint attention: once joint attention started to aid linguistic comprehension, along with language evolution, communicative success during cultural transmission could enhance the levels of joint attention among language users. I illustrate this hypothesis using a multi-agent, lexicon-syntax coevolution model, where joint attention boils down to a genetically transmitted ability to obtain non-linguistic cues for comprehending integrated meanings having simple predicate-argument structures. The simulation results showed that the level of joint attention was correlated with the understandability of the
emergent language and communicative success could boost an initially-low level of joint attention and get it ratcheted at a suitably high level. This perspective offers an alternative explanation to the degree-difference in many language-related competences between humans and non-human primates, and reflects the importance of biological evolution, individual learning, and cultural transmission to language evolution.


Selected recent papers


Thursday, April 4, 2013
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Jack L. Gallant
University of California/Berkeley
Department of Psychology

“Rich representations of visual and linguistic information across the human brain”

Most information in the human brain is represented at a scale far finer than can be obtained in typical localization experiments. Measurement of this fine-scale information could provide important new insights about the functional representations underlying cognition. In this talk I will summarize our work showing how multiple aspects of visual and linguistic information are represented across the human brain. Our work leverages a new approach to this problem that has been developed in my laboratory over the last several years, and which involves quantitative computational modeling of brain activity data recorded by fMRI while subjects watch movies or listen to stories. We find that both visual and linguistic information are represented across multiple, broadly distributed cortical maps that reflect different forms of visual and/or linguistic information. For example, the representation of semantic information in movies and stories appears to be represented in a low-dimensional semantic space that is mapped systematically across cortex, and which is shared across different individuals. These representations are far richer and more complex than those suggested by previous fMRI localization studies. Furthermore, many of these representations can be modulated by attention. Finally, I will present one straightforward application of our computational modeling approach: the construction of brain decoding algorithms that reconstruct mental states with unprecedented fidelity.

Website: http://cogsci.jhu.edu/events
Thursday, April 11, 2013
Refreshments at 3:30 pm – Presentation at 3:45 pm, room #111 Krieger Hall

Dr. Chris Baker
NIH/National Institute of Health

“Beyond the stimulus: ‘Top down’ processing in high-level vision”

The ventral visual pathway is often characterized as a largely feed-forward, serial hierarchy culminating in abstract representations of objects. In this talk, I will briefly outline an expanded neuroanatomical and functional framework for this pathway and present the results of a series of fMRI studies investigating the contribution of “top-down” factors to the representation of objects. First, using multivariate analyses and ultra-high field fMRI (7T), I will show how the ventral visual pathway contains precise information about imagined and recalled objects even in the absence of any stimulus. Second, I will show how the behavioral goals of the observer directly interact with incoming stimulus information throughout cortex to generate context-dependent visual object representations. In sum, these studies demonstrate the need to fully incorporate top-down processing in our models of high-level vision.

Website: http://cogsci.jhu.edu/events
“A probabilistic model of categorical effects in speech perception”

Categorical perception is typically taken as evidence that listeners extract primarily category information when perceiving speech. This talk argues instead that categorical effects in speech perception reflect listeners’ inference of continuous phonetic detail under conditions of uncertainty. A Bayesian model of speech perception is developed to capture vowel perception, and the same model is used to explore factors that underlie differences in strength of categorical effects across consonants and vowels. In essence, the model predicts that the strength of categorical effects should depend on the ratio between meaningful category variance and speech signal noise, suggesting that differences in the way we perceive vowels, stop consonants, and fricatives can be explained as parametric variation within a single framework. Mathematical analyses show that perceptual bias toward category centers does not necessarily require explicit category knowledge, but can be achieved simply by storing examples of previously heard speech sounds. Together, these results provide a unified model of categorical effects in speech perception and support the idea that listeners are extracting rich and detailed phonetic information from the speech signal.