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ASIC 2007

Sixth Annual Summer Interdisciplinary Conference

Tuesday, June 26 - Sunday, July 1, 2007
Kalymnos, Greece

Announcing ASIC 2007!

The Sixth Annual Summer Interdisciplinary Conference (ASIC 2007) will be held at the Kalydna Island Hotel on the island of Kalymnos, Greece (see: http://www.greecead.com/gadhome/kalymnos/kalydna_island_hotel.html, or: http://www.kalydnaislandhotel.gr/#). Richard M. Shiffrin of Indiana University - Bloomington is the organizer: Email correspondence should be directed to or mailed to Richard M. Shiffrin at Indiana University (select 'Contact' from the menu for the address).

For some photos of Kalymnos, please see: http://www.greeka.com/dodecanese/kalymnos/kalymnos-photos.htm

The subject matter of the ASIC conferences is interdisciplinary, within the broad frame of Cognitive Science. ASIC uses the very successful format of previous ASIC and AIC conferences: Days are free for leisure activities and the talks/posters are in the later afternoon/early evening, followed by dinner. The date has been chosen to make it convenient for attendees to bring family/friends. The conference is open to all interested parties, and an invitation is NOT needed to attend. However, due to the small number of spots for speakers, the organizer will select the attendees to give talks, and the other attendees will have the opportunity to present posters.

Previous Years' Websites

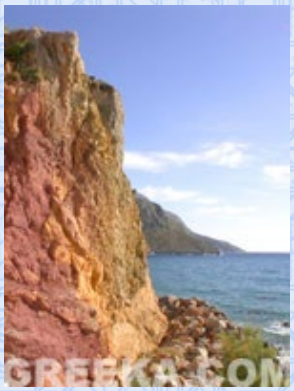
Several parts of this year's website are still under construction. For examples of previous years' websites, visit ASIC 2006 and ASIC 2005.

Invitation

The conference is open to all scholars who fit the very general theme of the conference, and their family and friends. An individual invitation is NOT needed. We encourage you to

send the conference information to friends and colleagues.

Conference Aims



The conference will cover a wide range of subjects in cognitive science, including:

- modeling of cognition
- neuroscience, cognitive neuroscience
- psychology (including perception, psychophysics, attention, information processing, memory and cognition)
- computer science and artificial intelligence
- machine intelligence and learning
- methodology and statistics
- linguistics, psycholinguistics and computational linguistics
- philosophy of mind, cognitive science

We especially invite talks emphasizing theory, mathematical modeling, and computational modeling (including neural networks and artificial intelligence). Nonetheless, we require talks that are comprehensible and interesting to a wide scientific audience. Speakers will provide overviews of current research areas, as well as of their own recent progress.

Conference Format

There is a single speaking session each day, except Saturday, which will have posters for the first half session. Information on submitting proposals for presentations (speaking or posters) is on the page of this website labeled 'Talk and Poster Submissions". Please submit talk/poster information on the website, even if you have already sent (some of) this information to the organizer.

The conference will start with registration and a reception from 15:30-16:30 on Tuesday, June 26. On subsequent days (except Saturday) there will be drinks and light snacks from 16:15 - 16:30, followed by a session of seven spoken presentations that include a mid-session drink break. The first half session on Saturday will be devoted to poster presentations, and will have drinks and snacks available for this period.

It will not escape the careful reader that this conference format frees most of the day for various activities with colleagues, family, and friends. We expect all scientific attendees and participants to attend all sessions. The time frame will allow day trips to nearby sites, cities, and islands, but arrange to return in time for the sessions. Travel to sites from which a return for the session will not be possible should be arranged for days preceding and following the conference.

Registration

You are not officially on the request list for presenting research (talks or posters) until you send the registration fee. visit the Registration page at this website.

Lodging

Rooms at Kalydna Island Hotel are limited, so reserve soon (the hotel can offer rooms at nearby hotels when space is full). For information visit the Lodging page at this website.

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Registration Information for ASIC 2007

If you are planning to attend ASIC 2007, please fill out the registration form and submit your registration fee. This fee pays for room and equipment rentals, snacks, banquet, etc.

This year's fee schedule, in US dollars:

Payment prior to:	By check in US dollars:	By Paypal:
Feb 1, 2007	175	180
Later	200	205

There are two ways to pay the registration fee:

1. **Send a check for the correct amount to ASIC 2007, c/o Richard M. Shiffrin, Psychology Dept., Indiana University, Bloomington, IN 47405.**

2. **Online by PayPal (this will entail a $5 handling fee).**

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SUBMISSIONS OF TALKS AND POSTERS

Whether you would prefer to give a talk or poster, and whether you have already sent some of this information to the organizer by email, please provide on the link below a list of authors (with the presenter indicated), their affiliations, and emails; a title, and an abstract (limit 250 words). These may be changed later, so do not hesitate to send them as early as possible. The organizer will use these to organize the sessions. Please go to the submission form to indicate your preference for talks or posters.

The spoken talks are absolutely limited to 30 minutes, a time that includes interruptions for questions, and final discussion. It would be best to plan for twenty minutes of actual speaking. The talks should be aimed not at specialists, but at a general scientific audience. Poster details are given below.

POSTER SESSION
Saturday, June 30

Present indications make it likely that there may be 60 or more participants, far too many for the approximately 42 speaking slots. We therefore have planned a poster session for Saturday, June 30, to begin at 16:00 and running until 18:00. A half session of talks will follow. Drinks and snacks will be made available throughout this poster period.

Participants giving posters should affix them to the allotted spaces (see below for details) before this time. There may be no harm, and perhaps some gain, in having posters up prior to Saturday.

Organizers of topical sessions should discuss with their session participants whether any might be able to give posters rather than talks, and so inform the organizer.

Given insufficient volunteerism, the organizer will decide who is assigned to speaking slots and posters. (Someone assigned a poster, but unwilling, should email the organizer to discuss options).

Poster Details

Size: **Posters should be no larger than 33" (or 85 cm) wide by 48" (or 120 cm) high. One can allow an extra blank inch or so of border on the top and bottom of the poster for the taping.**

Method of attachment: **Blue painters tape will be available on site to affix the posters to the walls (do not use any other method to attach to the walls).**

Location of posters: **The conference room walls can accommodate up to about 17 posters. If there is need for more, there is wall space on the nearby veranda.**

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TRAVEL TO AND ABOUT KALYMNOS

AIR

The airport on Kalymnos is now open. *Olympic Airways* runs all flights. Flights to Kalymnos go to and from the Athens airport Eleftherios Venizelos. The flight schedule is unlikely to change much in 2007, so the present schedule information may be useful:

From Athens to Kalymnos:

Monday: 1 flight at 13.35 (stop over at Astypalea Island).
Tuesday: 2 flights: 1) 08.40 direct; 2) 13.35 via Astypalea island.
Wednesday: 1 flight direct at 12.10.
Thursday, exactly the same as Tuesday.
Friday, exactly the same as Wednesday.
Saturday: 1 flight at 12:10 via Astypalea island.
Sunday: 1 flight direct at 12.10

Return flights to Athens are about 45 minutes after the arrival time. Scheduling of these, and the possibility of other inter-island flights will be added here when the information becomes available.

FERRIES

From Athens

Those with sufficient time could be interested in ferries from Athens. There is at least one per day to Kalymnos except on Saturday. There are two ferry companies that connect Kalymnos to Athens and to some other major islands: GA FERRIES and BLUE STAR FERRIES. GA FERRIES boats are slow and of worse quality, but a lot cheaper. The schedule last summer (2006) from Athens (Piraeus port) was:

Mon, Wed, Fri	GA FERRIES at 17.00 (13-14 hours). Returns next day about21.00 (they are never on time)
Tue and Thu	BLUE STAR FERRIES at 18.00 (9 hours). Returns next day ~17.00.
Fri and Sun	BLUE STAR FERRIES at 17.30 (9 hours). Returns next AM at 05.00.
Sun	BLUE STAR FERRIES at 18.00 (9 hours). Returns next day ~17.00.

From Kos

Before Kalymnos Airport opened it was common to fly to Kos and take a 45 minute ferry to Kalymnos. This route will probably not be used much now.

TRAVEL ON KALYMNOS

Buses

Buses connect all parts of the island. There is a bus station exactly outside the conference hotel from which buses can be taken to all parts of the island. A one-way ticket costs about 1 EURO.

Taxis

Taxis are easy to find. From the hotel a taxi can be ordered and arrives in around 5 minutes. Costs depend on distances, but to give some idea, a taxi from the hotel to the port costs around 7-8 EURO. A taxi from the hotel to Vathi, a distance of about 20 Km costs around 20 EURO. A taxi from the hotel to Massouri costs around EURO 5.

Automobile

There are several rental companies. E.g. AVIS with telephone numbers: 003022430-47430 or 47797, or BUDGET with telephone numbers: 003022430-24202 or 29939.

Motorbikes

This is a common form of transportation on the island. One rental possibility is Stefanos Gerakios, telephone numbers: 003022430-48327 or 48290.

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Lodging

We have placed a hold on all 43 rooms and bungalows at the hotel. The Kalydna Island Hotel has agreed to a price of 50 euros/night for singles, and 55 euros/night for doubles, prices that include breakfast. The hotel also has some triples (@65 euro/night), and four bedded bungalows (with pool view @ 70 euro/night). (If all the rooms in the hotel are booked, the hotel has arranged for similar accommodations at similar prices in nearby hotels within about 100 meters distance.)

Lodging reservations should be made early, because space is limited and we expect a large attendance this year. Reservations can be made either by email to
or
Those wanting to confirm reservations by telephone should use 30-69776-71667. Attendees can also try faxing the hotel at 30-21025-15010 (or 30-22430-47190 in season). Kalydna Island Hotel requires one night's deposit upon booking, A full refund is available up to sixty days prior to arrival, and then until the conference start, the cancellation fee is the one night's deposit. No shows are, however, charged for the full stay that has been reserved. The hotel will provide details concerning payments. One method is a bank transfer to:

ALPHA BANK
Account No: 779-002101-033059
Holders: G. & N. KOUNTOURIS
IBAN: 690140779079002101033059
BIC: CRBAGRAA

The hotel can also accept credit card payments, under conditions they will explain when making the reservation.

Attendees who attempt to reserve after Kalydna Island Hotel is full, will be given full information by the propriter concerning alternatives and arrangements.

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Food/Dining

We decided this year to leave three evenings open for attendees to explore local tavernas and other dining options. In particular, there is no hotel meal planned for the opening evening, Tuesday, June 26, but there will be food at the reception preceding the session, so that a large post session meal may not be needed (see menus below). In addition no hotel meals are planned for Thursday, June 28 and Saturday, June 30. For Saturday the hotel has arranged an optional 'pirate ship' excursion to a deserted beach including a large midday meal, conditional on sufficient numbers of attendees signing up in advance-see below for details. On Wednesday, June 27 and Friday, June 29, there will be buffet meals at the hotel, and on Sunday July 1 there will a banquet buffet at the hotel to end the conference (see the menus below). The food and beverage choices are indicated below on the menus, as are the prices (that will be added to the hotel bill for the attendees). The food and drink offerings at the session openings and the session breaks are paid for from the participants registration fees (as is a subsidy for the final banquet).

BEACH OUTING AND BBQ LUNCH

Optional excursion for the day of Saturday, June 30.

Departure from the hotel will be about 9:00-9:30 AM, and the return will be by 3:30 PM. The excursion will include transport from the hotel to the port and return, transport from the port to a deserted Kalymnos beach on a traditional wooden pirate-type boat, and a beach BBQ lunch. The transport time from hotel to beach should total about 1.5 hours each way.

The BBQ lunch will offer fresh grilled fish and grilled octopus, 3 different salads, souvlaki and fruits, and will include wine, beer, soft drinks and mineral water.

Total price, inclusive, for this excursion is Euro 52/person. The excursion will be offered only if at least 30 people sign up in advance (in order to book the boat).

Please call or email the hotel to let them know how many in your group will be joining the beach outing. Please do this soon and no later than April 15, so the boat can be reserved.

The excursion date has switched from Thursday to Saturday. If you were already signed up, please let the hotel know whether or not you are still OK for the Saturday date. At last count, there was a need for two more people to sign up to enable the tour to take place. Please contact the hotel directly to confirm and make plans.

MENUS

Welcome cocktail reception

Drinks

Ouzo, wine, soft drinks, mineral water, filter coffee, tea

Cold Canapes

Vegetable crudit?s with sauce
Canapes with aubergine salad
Salted Fish (Typical with ouzo)
Chips

Hot Canapes

Small cheese pies
Small spinach pies
Small sausages with bacon
Small meat balls

Price: EURO 16/person

Dinner Buffet 1

Salads

Mermizeli (Kalymnian traditional salad)
Potato Salad
Aubergine Salad
Tuna Salad

Main Dishes

Chicken with garlic and almonds
Oven cheek peas (Traditional Kalymnian Dish)
Spicy Octopus
Vegetables ratatouille (Aubergines, peppers, potato)
Cheese pie

Desserts

Selection of greek syrup sweets
Selection of fruits

Price: EURO 20/person. Please note that at this price ? bottle of wine or 2 beers per person and 1 soft drink per person is included.

Dinner Buffet 2

Salads

Mermizeli (Kalymnian traditional salad)
Potato Salad
Aubergine Salad
Chicken Salad

Main Dishes

Mousaka
Stuffed tomatoes and peppers
Pasta with sea food
Potatoes in a tomato sauce
Pork with lemon and oregano
Zuchinni Pie
Rice

Desserts

Selection of greek syrup sweets
Selection of fruits

Price: EURO 20/person. Please note that at this price bottle of wine or 2 beers per person and 1 soft drink per person is included.

Fish BBQ Night

Final Buffet Banquet

Salads

Mermizeli (Kalymnian traditional salad)
Choriatiki Salad
Potato Salad
Aubergine Salad
Politiki Salad
Tuna Salad
Tzatziki
Cheese Salad
Boiled zucchini salad

From the Grill

Octopus, mackerel fish, yellow mullets

Main Dishes - Accompaniments

Stuffed wine leaves
Chicken in a wine sauce
Mousaka
Aubergines Imam (Vegetable and aubergines ratatouille)
Oven potatoes
Zuchinni pie
Oven cheek peas (Traditional Kalymnian Dish)
Rice

Desserts

Selection of greek cheese
Selection of greek syrup sweets
Selection of fruits

Price: EURO 25/person. Please note that at this price bottle of wine or 2 beers per person and 1 soft drink per person is included.

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Climate, Weather, Clothing

The weather in Kalymnos in the summer is quite hot, especially in the sun. Be warned and prepared. There are often substantial sea breezes, and as a result the evenings and nights can be pleasant or even cool.

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Recreational Opportunities on and near Kalymnos

See General Information

This site is very useful-it probably contains better, more accurate and more useful information than I list below!

I. Sports Activities (to be elaborated)

Climbing

Kalymnos has recently become a prime destination for rock climbing, with continuing development of climbing areas and routes. There are approximately 25 currently developed areas along the west coast, within easy access from the hotel, each with many bolted routes. The climbing is on very featured limestone, often with stalactites and other similar features. Most are one pitch climbs, but there are some climbs up to five pitches. The climbs are at all levels of difficulty from beginner to expert.

A newly updated guidebook on climbing has been published by Aris Theodoropoulos in 2006. One source I found was at: http://www.needlesports.com/acatalog/Mail_Order_Greece_135.html.

A reasonably complete summary of climbing possibilities may be downloaded from the web at: http://www.climb-kalymnos.com/guide.html This site is part of a larger site with additional information.

We will place information on this website about the following activities and others in the coming months:

- **Scuba diving**
- **Snorkeling**
- **Hiking**
- **Fishing**
- **Sailing**
- **Windsurfing**

II. Leisure Activities and Tourism (to be elaborated)

A. Island of Kalymnos

***Sea World Museum*: Also known as the Museum of Submarine Finds, it is located on the beach in Vlychadia. This extraordinary museum shows the natural world under the sea- including sponges (sponge fishing was the traditional source of income in Kalymnos), and sunken treasure retrieved from local shipwrecks, most collected by former diver Stavros Valsimades.**

B. Island of Telendos

Underwater Ruins of the Old Capital: In 535 AD, Kalymnos experienced a huge earthquake, with tremors that lasted 14 days. As a result, the old capital was lost under the sea and little Telendos became a separate rocky island lying off the west coast. Telendos is now reached regularly by bus boats from Myrties. Both snorkeling and scuba diving allow sight of the ruins of the old capital in the sea between Kalymnos and Telendos.

Telendos Quay: There are no roads on Telendos so no traffic. The wide quayside has been recently paved and a number of tavernas have placed their tables along it. Its a romantic setting and a favourite with couples enjoying the views across to the twinkling lights of Myrties and Massouri (best at night). The last ferry leaves around 10.30 pm.

Beaches on Telendos: These are small and accessible only along rough tracks. At the nearest there are fine views across the straits to the main island; the impressive remains of an early Christian basilica being excavated behind the beach is worth a look. The small path that runs behind the beach leads to better coves beyond. The path along the coast peters out after a while into what is little more than a goat track. A further scramble along a rough and rocky track reveals a couple of small coves dotted with sunbeds. The furthest cove, known as PARADISE BEACH, is the best with a bank of shingle dipping into shallow seas beneath a large rock outcrop that provides shelter. This is also a naturist beach and helps to keep it quietly exclusive as, no matter where you sit, you are likely to be thigh to thigh as it were with a naturist. Other beaches can be found on the western coast of the island by following the alley off the main harbour past the Barba Stathis taverna and up a paved and tiled track which peters out at the top of the hill. To the right down a precipitous cliff path is the small cove of HOKLAKAS with a few sunbeds set on shingle beneath the sheer cliffs. This is a great place for snorkeling and enjoying the sunset to the west.

C. Kos

D. Rhodes

E. Samos

F. Turkey, Bodrum and Ephesus

A daily hydrofoil goes from Pothia (via Kos) to Bodrum on the Turkish coast. Bodrum offers interesting shops, a local market, a crusader castle, and museums devoted to the underwater world, among other attractions. From Bodrum there is easy access to many famous archeological sites, such as Ephesus.

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Following the sessions, there will be a buffet dinner at the hotel on Wednesday, Friday, and the final banquet on Sunday. The attendees are on their own for dinner on the other nights. Note however, that there is a planned excursion by 'pirate boat' to a beach for a mid-day BBQ lunch on Thursday. Details are in the section 'Meals'. Let the hotel know if you wish to join this excursion.

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Authors, Titles, Abstracts

(When sufficient titles, and abstracts for talks and posters arrive, I will begin posting them in this section)

Alphabetical listing by speaker

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O
P | Q | R | S | T | U | V | W | X | Y | Z

A

Speaker's Name: Kenneth Aizawa
First Author's Name: Kenneth Aizawa
First Author's Affiliation: Centenary College of Louisiana
Title: Representation and Cognition
Abstract: Some recent work in mobile robotics has suggested the view that perhaps cognition does not involve representation. These suggestions are inspired by work with robots and simulated robots that are able to accomplish certain tasks without apparent use of representations. This work is, however, open to alternative interpretations. For one thing, what this work might show is that, prior expectations to the contrary notwithstanding, certain tasks do not after all require cognition. For another thing, even if these tasks turn out to involve some form of cognitive processing, they may fail to illuminate much of human or primate cognition, insofar as single cell recording techniques suggest that primate brains in fact use mental representations.

Speaker's Name: Colin Allen
First Author's Name: Colin Allen
First Author's Affiliation: Indiana University
Title: Representations in the spinal cord?
Abstract: I will discuss evidence from experiments on spinally-transected rats for organizational principles in the spinal cord that are similar to but simpler than those in the brain. These spinal mechanisms support phenomena similar to those that have been used to argue for cognitive explanations of brain-based behavior. I will discuss the senses of reductionism inherent in studying the spinal cord detached from the brain, and I will compare and contrast this to Beer's "frictionless brains" approach. I will consider the extent to which these approaches to studying reduced systems support or undermine the common claim that representation is at the core of cognitive explanation.

B

Speaker's Name: Randall Beer
First Author's Name: Randall Beer

First Author's Affiliation:	Indiana University
Title:	Synaptic Plasticity and Learning in Evolved Model Neural Circuits
Abstract:	Discussions of learning typically assume that the mechanisms responsible for behavior and those responsible for learning are distinct, with the latter modifying parameters of the former. However, in this talk I will argue that the relationship can be much more complex. First, I will describe a set of experiments in which model neural circuits that can successfully solve a food edibility learning task without the use of plastic synapses are evolved. Next, I will characterize the combinatorial structure of this task. Through a dynamical analysis of the evolved circuits, I will then show how the dynamics of these circuits implement learning by respecting this combinatorial structure. Finally, I will describe a set of experiments in which model neural circuits with plastic Hebbian synapses were evolved on the same task. Interestingly, successful plastic circuits used their Hebbian plasticity in a very nontraditional way. Some recent work at the University of Sussex which is extending the present work will also be mentioned.

Speaker's Name:	Randall Beer
First Author's Name:	Randall Beer
First Author's Affiliation:	Indiana University
Title:	Representational Skepticism and the Dynamics of Brain-Body- Environment Systems
Abstract:	Given the fundamental role that the notion of internal representation plays in cognitive science, it is surprising that there is so little agreement about what an internal representation actually is and how one should go about identifying such a thing in a physical system. This suggests that adopting a skeptical attitude toward representation may be a fruitful way to clarify the scope and limitations of this concept. However, a critical examination of representation can only be carried out within a conceptual framework that does not already presuppose the concept. Fortunately, recent work in situated, embodied and dynamical approaches to behavior and cognition offers such a broader theoretical playing-field. In particular, model brain-body-environment systems evolved to perform cognitively-interesting tasks allows an analysis of the internal mechanism underlying cognitive behavior that is relatively unbiased by a priori assumptions, replacing dueling intuitions about representation with empirical investigation. Initial results from such studies suggest that dynamical agents can make use of internal state in sophisticated ways that are not usefully interpreted as being representational.

Speaker's Name:	Bruno Bocanegra
First Author's Name:	Bruno Bocanegra
First Author's Affiliation:	Erasmus University Rotterdam
Second Author's Name:	Rene Zeelenberg
Second Author's Affiliation:	Erasmus University Rotterdam
Title:	Emotional Cues Improve and Impair Visual Identification
Abstract:	Previous studies indicate that humans are endowed with specialized neural structures that enhance the perceptual

identification of emotionally significant events. Although it has been demonstrated that emotional stimuli are better identified than neutral stimuli, the specific mechanisms underlying this enhancement remain unclear. We investigated the influence of an emotional cue word on the visual identification of a subsequent neutral target word. By manipulating cue-target intervals and cue visibility we were able to show both perceptual improvements and impairments due to emotion. Our results indicate that when there is limited time available for the processing of visual events, emotion causes a two-fold benefit in perception: (a) a general enhancement in the efficiency of visual processing, and, (b) a stimulus-specific enhancement that prioritizes emotional events during capacity-limited processing. We therefore suggest that the perceptual enhancements underlying the rapid and effective detection of emotional stimuli can be dissociated in terms of their dependence on selective attentional mechanisms, and thus, that distinct perceptual processes contribute to the improved sensitivity to motivationally significant events.

Speaker's Name: Bruno Bocanegra
First Author's Name: Bruno Bocanegra
First Author's Affiliation: Erasmus University Rotterdam
Second Author's Name: Ren&#xfffd; Zeelenberg
Second Author's Affiliation: Erasmus University Rotterdam
Title: Emotion impairs high frequency spatial vision
Abstract: In order to respond adaptively to threat in the environment our brains are equipped with specialized mechanisms that enhance the visual processing of emotional events. Although a previous study indicated that emotion enhances vision, the generality of this finding remains unknown. Do the benefits of emotion extend to all basic dimensions of vision or are they limited in scope? Here, we provide the first demonstration that emotion not only improves but also impairs low-level vision. Our results indicate that the brief presentation of a fearful face enhances orientation sensitivity for low spatial frequency gabors, but diminishes sensitivity for high spatial frequency gabors. We show this counterintuitive pattern of benefits and deficits is due to a sensitivity shift across the spatial frequency spectrum, triggered by the global facial configuration in the fearful expressions. Consistent with previous neuroimaging data, the selective low-frequency benefits suggest that emotion enhances magnocellular visual processing. Additionally, we propose that the high-frequency deficits might be due to cross-inhibition between magno- and parvocellular visual pathways. Our results reveal an emotional mechanism that improves the detection of coarse features at the expense of fine-grained visual details, presumably in order to facilitate responses to motivationally significant stimuli.

Speaker's Name: Jeffrey Bowers
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Third Author's Name:	Colin Davis
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Title:	Some fundamental problems with PDP theories of STM and cognition more generally
Abstract:	Advocates of the PDP framework are committed to two fundamental (and related) claims; namely, (1) that the mind/brain encodes information in a distributed manner and (2) a context dependent manner. Critics of this approach have claimed that distributed representations are subject to the superposition catastrophe (where multiple things cannot be co-activated across the same set of units), and that context dependent representations do not support widespread generalization. Although a recent PDP model of STM by Botvinick and Plaut that appears to meet these challenges, we show in a series of simulations that the model is restricted in exactly these ways. We also question the general claim that PDP models are more biologically realistic compared to neural networks that include localist and context independent representations; that is, neural networks that implement symbols.

Speaker's Name:	Thomas Busey
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First Author's Affiliation:	Indiana University
Second Author's Name:	Larry Humes
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Third Author's Name:	James Craig
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Title:	Temporal Processing in Visual, Tactile and Auditory Modalities in the Elderly
Abstract:	Normal aging produces decreased functionality in tasks related to temporal processing such as backward masking, temporal order and identification tasks. In this project we measure equivalent tasks in visual, tactile and auditory modalities to assess whether the declines are correlated across modalities, and where they are address the nature of the common mechanism.

C

Speaker's Name:	Axel Cleeremans
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Third Author's Name:	Patrick Haggard
Third Author's Affiliation:	University College London
Title:	Time, intention, and awareness of action
Abstract:	Time plays a central role in consciousness, at different levels and in different aspects of information processing. Here, we focus on awareness of simple motor acts, such as pointing movements. Subjects reached for a target, which unpredictably jumped to the side on some trials. Participants (1) expressed their expectancy of a target jump, (2) pointed at the target, adjusting their movement towards the shift if required and (3) reproduced the movement they had just

made (as a measure of their motor awareness). We analysed the spatial disparity between the initial and the reproduced movements on those trials with a target shift. Negative values (undershoots), suggest "motor pessimism" in that motor awareness only reflects a sluggish, reconstructed awareness of the actual movement, while positive values (overshoots) suggest "motor optimism" in that the reproduced movement is influenced more by participants' prior intention to point to the shifted target than by their actual movement. Using these measures, we found that expectancy strongly influenced the experience of action. Further, the occurrence of delays between the three components of each trial (expectancy, action, reproduction) had no effect on visuomotor adjustment but strongly influenced action awareness: Delays boosted undershoots, suggesting increased reliance on a time-limited memory for action. Experience of action is thus strongly influenced by prior thoughts and expectations, but only over a short time period. Thus, awareness of action is a dynamic and relatively flexible mixture of what we intend to do and of what our motor system actually does.

Speaker's Name: Andrew Cohen
First Author's Name: Michael Ross
Second Author's Name: Andrew Cohen
Second Author's Affiliation: University of Massachusetts
Title: Modeling human visual classification with Bayesian networks
Abstract: This work describes a Bayesian network model of human visual classification and an algorithm for fitting it to experimental data. While the traditional classification image technique assumes a simple linear classification model, this model describes classification as the result of combining the output of conditionally independent feature detectors. As a result, it can distinguish between human classification strategies that produce equivalent classification images.

Speaker's Name: Andrew Cohen
First Author's Name: Andrew Cohen
First Author's Affiliation: University of Massachusetts
Second Author's Name: Michael Ross
Title: Exploring mass ratio perception with psychological Markov chain Monte Carlo sampling
Abstract: A number of previous studies have examined humans' ability to deduce the relative mass of objects in idealized collisions. Using a newly developed technique of psychological Markov chain Monte Carlo sampling (Sanborn & Griffiths, 2006), this work examines subjects' mental representations of different collision mass ratios. The results reveal strong inter-subject similarities and qualitative differences between the representations of 1:1 and 1:2 ratios. The results suggest that while subjects have a narrow and constrained (albeit incorrect) internal model of 1:1 collisions, their representations of other ratios are vague and diffuse.

D

Speaker's Name: Eddy Davelaar

First Author's Name:	Eddy Davelaar
First Author's Affiliation:	Birkbeck, University of London
Title:	Retrieval dynamics in free recall
Abstract:	Recent years have seen a growing re-interest in computational mechanisms underlying free recall memory. Going beyond the STM/LTM-debate, I will present new computational work regarding the dynamics of retrieval in a free recall paradigm by addressing the following questions: (1) what kind of context representation allows for retrieving the first item of a list, (2) to prevent repetitions, what is suppressed, (3) what alternative explanation exists for asymmetric lag-recency effects besides the retrieval of pre-experimental context, (4) what causes the ﬁburstingﬂ behaviour, (5) what underlies the termination of memory retrieval. These and other questions are explored in an activation-based framework.

Speaker's Name:	Eddy Davelaar
First Author's Name:	Eddy Davelaar
First Author's Affiliation:	Birkbeck, University of London
Title:	Primary memory: contributions to free recall performance
Abstract:	On the same page on which William James introduced the terms primary and secondary memory, he presented his view on how they are implemented in the brain, which is not different from Hebb's view. Here I start with the view that primary memory is the activated part of long-term memory, or better yet that primary memory is the process (see also, Norman, 1968) by which temporarily activated long-term knowledge is maintained in active state beyond its expected unaided life-time. The current debate in the literature is whether a short-term buffer needs to be postulated in order to account for performance on free recall tasks (Brown, et al, 2007; Davelaar, et al, 2005; Howard, et al, 2007). I will briefly touch on dissociations in recency effects over the short- and long-term, on dissociations between immediate and longer-term free recall tasks, and some points of confusions. One source of confusion is the unclarity of the concept of activation-based short-term store. I will show using simulations why an activation-buffer is different than a fixed-box buffer and its association with working memory models that assume that the content of working memory is the activated part of long-term memory (Cowan, 1999; McElree, 2006; Oberauer, 2002).

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Fourth Author's Name:	Philippe Peigneux
Fourth Author's Affiliation:	University of Brussels
Fifth Author's Name:	Steven Laureys
Fifth Author's Affiliation:	University of Liﬁge
Sixth Author's Name:	Pierre Maquet

Sixth Author's Affiliation:	University of Li&#65533;ge
Title:	Automatic priming and conscious expectancy in a simple reaction time task.
Abstract:	Some authors claim that learning is always accompanied by awareness while others defend the notion that learning can occur unconsciously. In this study, we present a series of experiments in which the conscious and unconscious components of performance are pit against each other in a simple reaction time task where a preparatory signal (a tone) is associated with an imperative stimulus (a visual target) in 50% of the trials. We also manipulated the time interval between the preparatory signal and the imperative stimulus. We show that, when the preparatory signal is increasingly followed by the imperative stimulus (a visual target), reaction times to this latter event tend to decrease. Importantly, the conscious expectancy for the target decreases at the same time. Results showed that conscious expectancy was systematically dissociated from reaction time, whatever the temporal relationship between the tone and the visual target. These results challenge those who argue against the existence of genuine dissociations between consciousness and behaviour and correspond to previous results indicative of the same dissociation in the context of classical conditioning (Perruchet, 1985). By contrast, in the conditioning literature, behaviour tends to be no longer dissociated from conscious expectancy when the delay between the preparatory and imperative events increases. This study therefore suggests that the influence of temporal factors on associative learning mechanisms differs when voluntary instead of automatic responses are involved.

Speaker's Name:	John Dunn
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First Author's Affiliation:	University of Adelaide
Second Author's Name:	Andrew Heathcote
Third Author's Name:	Rachel Stephens
Third Author's Affiliation:	University of Adelaide
Title:	The dual process model of recognition memory: A state trace analysis
Abstract:	The dual process model proposes that recognition memory depends upon two qualitatively different retrieval processes, often termed recollection and familiarity. Recollection refers to the retrieval of context-dependent information from the study episode and supports high confidence decisions that a test item is old. Familiarity refers to the retrieval of context-independent information affected by the number and recency of prior presentations of the test item and supports both low and high confidence decisions. Previous research has identified several independent variables that appear to differentially affect recollection and familiarity. The present study uses this fact in conjunction with state trace analysis, to test a critical prediction of the dual process model. That is, if there are two retrieval processes underlying recognition memory and they are differentially affected by two independent variables then the state trace plot of high confidence hit rate against low confidence hit rate will reveal a non-monotonically increasing relationship. This prediction is tested in two experiments. The first combines study

modality and number of study presentations as previous research indicates that the former variable primarily affects familiarity while the latter variable similarly affects both recollection and familiarity. The second combines number of presentations with a generation/read manipulation as previous research indicates that this variable primarily affects recollection. The logic behind state trace analysis is explained and the results of the two experiments and their implications for dual process models are discussed.

E

Speaker's Name: Shimon Edelman

First Author's Name: Shimon Edelman

First Author's Affiliation: Cornell University

Title: Structure from statistics: the computational basis of language

Abstract: Hierarchically structured, serially ordered sequences of representations arise in task domains that range from locomotion, reaching, and manipulation to problem solving and reasoning; in language, these correspond to constructions that populate the lexicon-grammar. Novice users of language learn the repertoire of constructions while interacting with their social environment, through the application of largely domain-general structured statistical learning principles. I shall describe recent progress in understanding these principles, in particular a working computational approach to grammar acquisition from raw, unannotated corpora, which has been tested on texts as diverse as the CHILDES transcripts and the Bible. The unsupervised algorithm that constitutes the core of this approach recursively aligns corpus sentences to extract hierarchically structured patterns representing statistically significant syntagmatic regularities. Units (patterns or terminals) that are in complementary distribution in certain contexts are grouped into context-specific paradigmatic equivalence classes. The resulting lexicon-grammar --- a collection of tree-structured elements that are empirically grounded in the corpus to which the learner has been exposed --- is highly productive, and can support a variety of applications, including language modeling.

Speaker's Name: James T Enns

First Author's Name: James T Enns

First Author's Affiliation: University of British Columbia

Title: Rapid Resumption of a Visual Search

Abstract: Visual search can be resumed more rapidly following a brief interruption to an old display than it can be initiated on a new display, pointing to a critical role for memory in search (Lleras, Rensink & Enns, 2005). Here we examine how changes made to the display during the interruption of search affect this phenomenon. Rapid resumption was shown to depend on the prior presentation of the target, not merely the distractor items (Experiment 1), and it was unaffected by the relocation of all distractor items on each display presentation (Experiment 2). However, changes to response-relevant features of the target abolished rapid resumption (Experiment 3) whereas the same changes made to response-irrelevant features did not (Experiment 4). These results point to the

target-specificity of rapid resumption and are consistent with reentrant theories of visual awareness.

F

Speaker's Name: Stefan Frank
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First Author's Affiliation: Radboud University Nijmegen
Second Author's Name: Pim Haselager
Second Author's Affiliation: Radboud University Nijmegen
Title: Connectionist semantic systematicity
Abstract: Ever since Fodor & Pylyshyn (1988) claimed that connectionist models cannot display systematicity and productivity, many researchers have attempted to provide counterexamples. Few of these attempts, however, dealt with so-called semantic systematicity, defined by Hadley (1994, 2004) as the ability to assign a correct semantic representation to any novel sentence. According to Hadley, the degree of systematicity a system displays is apparent in the degree of input novelty it can tolerate. In a neural network, therefore, a large degree of systematicity comes down to the ability to correctly deal with many test inputs that differ strongly from training examples. Alleged demonstrations of connectionist semantic systematicity have been criticized for using too few and too weak test inputs (Bod&#65533;n & Niklasson, 2000) or for not being truly connectionist (Hadley & Cardei, 1999). We will present a connectionist model of sentence comprehension and show that it displays semantic systematicity. It implements the theory that understanding a sentence does not require the construction of a propositional structure but comes down to mentally simulating the situation the sentence describes. These situations occur in a simple `microworld' and are described by sentences in a `microlanguage'. The network is not trained on descriptions of particular situations but is nevertheless able to correctly process sentences describing these new situations, that is, it is semantically systematic. Also, the model accounts for sentence recognition data by Fletcher & Chrysler (1990).

Speaker's Name: Stefan Frank
First Author's Name: Stefan Frank
First Author's Affiliation: University of Amsterdam
Title: Self-organizing word representations for fast sentence processing
Abstract: There exist several psycholinguistic models in which words are represented as vectors in a high-dimensional state space. In these state spaces, two vectors are close together if the corresponding words belong to the same part-of-speech and/or have similar meaning. That is, neighboring words may take each other's place in a sentence or text, which justifies calling such an organization paradigmatic. However, a syntagmatic organization, in which state-space distances encode probabilities of word transitions, may be more felicitous for time-efficient sentence processing. This is because, in such an organization, words that are likely to occur next are represented by vectors that are close to the current position in state space. I will present a fully recurrent neural network that comes to represent word sequences

syntagmatically, through self-organization of word representations. The network receives sentences, one word at a time, generated by a simple probabilistic context-free grammar. At each time step, the network's units receive activation from each other (through weighted connections) and from the input word. In this manner, the activation vectors trace a trajectory through state space. The connection weights remain fixed at random values while word representations are adapted, increasing the syntagmatic nature of the state-space trajectories. Interestingly, this procedure turns out to lead to the emergence of more paradigmatic representations of individual words, thereby providing an explanation for the paradigmatic nature of word representations.

Speaker's Name: Stefan Frank
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Title: Testing the Surprisal Theory of Word-reading Time
Abstract: According to so-called "surprisal theory" (Hale, 2001; Levy, 2008), a word's probability of occurrence given its sentence context is inversely logarithmically related to the time required to read that word. Tests of this theory have implicitly assumed that the (subjective) probabilities a reader assigns to words correspond to the (objective) probabilities as extracted from text corpora. If surprisal theory is correct and subjective probabilities indeed correspond to objective probabilities, an objectively more accurate probability model should also provide more accurate predictions of word-reading times. To investigate whether this relation holds, we compared two models that can generate word probabilities and that have been suggested as a basis for psycholinguistic models of sentence processing. However, they make very different assumptions as they originate from disparate fields: One is a Simple Recurrent Network (SRN; the quintessential connectionist model), the other a Probabilistic Context-Free Grammar (PCFG; the standard model in computational linguistics). Both models were trained on a part of the Wall Street Journal corpus and tested on the Dundee corpus, which contains both newspaper texts and corresponding eye-movement data. Preliminary results show that the SRN generates more accurate word probabilities, whereas the PCFG provides better predictions of reading times. This suggests that subjective probabilities cannot be estimated by objective probabilities or that surprisal theory is simply incorrect. If we do hold on to the theory, the results indicate that a system based on tree-structures forms a better psycholinguistic model than does a connectionist system.

Speaker's Name: Bob French
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Title: Rule Extraction in Category Learning: a semi-supervised neural network model
Abstract: We develop a semi-supervised "dual-network"

connectionist model of category learning in which rules gradually emerge from a standard Kohonen network. The architecture is based on the interaction of a statistical-learning (Kohonen) network and a competitive-learning rule network. The rules that emerge in the rule network are essentially weightings of individual features according to their importance for categorisation. These rules emerge due to the presence of noise on the input of the Kohonen network. Once the combined system has learned a particular rule, it de-emphasizes those features that are not sufficient for categorisation, thus allowing correct classification of novel, but atypical, stimuli, for which a standard Kohonen network fails. We will explain the principles and architectural details of the model and show how it works correctly for stimuli that are misclassified by a standard Kohonen network.

G

Speaker's Name: Jason Gold

First Author's Name: Jason Gold

First Author's Affiliation: Indiana University, Bloomington

Second Author's Name: Patrick Mundy

Title: Classification images for a size illusion

Abstract: Perceived size can be influenced by context. An example of this is the Ebbinghaus Illusion, in which a central dot of fixed size is surrounded by either smaller or larger dots. In this illusion, the central dot is typically perceived to be relatively smaller when surrounded by larger dots. We psychophysically measured the effect that this illusion has on how we process spatial information by having observers perform a simple detection task of the central dot in the context of either smaller or larger surrounding dots. We embedded the central dot in Gaussian pixel noise and used response classification analysis to derive classification images -- feature maps that show the relative influence of each image location on observer's decisions. We found that observers surprisingly used the same sized region when performing both tasks. However, in the context of the larger surrounding dots observers gave relatively more weight to the area surrounding the central dot and relatively less weight to the area within the central dot region. We are currently exploring a simple Bayesian model of early visual processing (up to and including V1) to see our results can be predicted by pre-neural mechanisms and/or the response properties of V1 receptive fields.

H

Speaker's Name: Andrew Heathcote

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First Author's Affiliation: Univeristy of Newcastle, Australia

Second Author's Name: Lee Averell

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Title: On the Causes of Forgetting

Abstract: Is normal forgetting due to loss from storage of memory traces or are memory traces permanent and forgetting due only to retrieval failure? Does the rate of forgetting, relative to the amount retained, decrease with the retention interval (i.e.,

consolidation) as proposed by Jost's Law? We examined these issues in a stem cued recall paradigm measuring explicit and implicit memory in different groups of participants. Retention performance over intervals ranging from a few minutes to one hour were measured in an initial two our session. For both types of memory there was no evidence of consolidation and performance after 20 minutes was constant and clearly above chance, so the best model for the data was an exponential function with an above chance asymptote. Participants came back for an further testing session after one week, with half being reminded of the general study context by reviewing questions they answered before and after the initial study session. The asymptote from first session retention function predicted second session performance in the implicit context reinstatement condition, but performance was lower than predicted in the other conditions. These results reject consolidation, and hence Jost's Law, and indicate that memory traces are permanent with forgetting being due to the loss of retrieval cues.

Speaker's Name: Pernille Hemmer
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Title: The Effect of General Knowledge on Memory for Events.
Abstract: Size judgments are known to be influenced by existing knowledge. We tested whether memory for an event regresses toward a mean – a prototype already in memory – when tested in a recall memory environment. Participants are presented with categories of objects with an inherent and meaningful size, and their judgments demonstrate and influence by existing knowledge. Specifically, a regression towards the mean was observed. Furthermore an outlier effect was observed as a more accurate memory for items that violated expectations for a given category. It was hypothesized that the reproduction of past stimuli can be decomposed into three components: 1) prior knowledge, 2) episodic trace, and 3) noise in recall. Through a series of experiments and theoretical models for behavior the relative weights of these three components were measured and characterized.

Speaker's Name: David Huber
First Author's Name: Yoonhee Jang
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Second Author's Name: David Huber
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Third Author's Name: Thomas Wallsten
Third Author's Affiliation: University of Maryland, College Park
Title: A Stochastic Judgment Model of Recall: Separating Measurement, Memory, and Correlation
Abstract: Theoretical accounts of episodic recall typically assume that recall is an accurate all-or-none process. However, recent results often suggest a very different picture in which recall is fallible and graded along different dimensions. In order to foster new theoretical accounts of episodic recall, it's necessary to collect supplemental judgments both prospectively (e.g., judgments of learning) and

retrospectively (e.g., judgments of confidence or source). For these judgments, signal detection theory is inappropriate because the classes of items (recalled versus non-recalled) are determined by the responder rather than through some external manipulation. In order to relate these judgments to the underlying memory distributions, we developed a new detection model that consists of 1) a criterial detection process for the judgments; 2) a criterial detection process for recall; and 3) some relationship (correlation) between the distributions that support these two detection processes. Variability in the judgment criteria implies inconsistent scale use (measurement) and variability in the recall criteria implies inconsistent retrieval strategies (memory). In sum, these 3 sources of inconsistency may contribute to a relative lack of correspondence between judgments and recall. In a series of empirical and computational studies, we investigated the validity of this model and its implications for episodic recall.

Speaker's Name: David Huber
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Second Author's Name: David Huber
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Title: Measuring the statistical dependence between familiarity and recall

Abstract: Following study of paired words, participants were given a sequence of test trials that alternated between 1) forced choice recognition of single words and 2) use of the target from step 1 as a cue for recall of the studied associate. This recognition followed by cued recall procedure produces a 2X2 table for memories that do or do not support recognition combined with memories that do or do not support cued recall. In addition, recognition performance was manipulated through immediate repetition priming (i.e., the Jacoby-Whitehouse paradigm) and also through speeded versus non-speeded responding. Multinomial Processing Tree (MPT) models of these data were used to examine the influence of priming on recognition and the influence of speeded responding on recognition. Finally, an appropriate MPT was used to measure the statistical dependence between familiarity based recognition versus recall based recognition.

K

Speaker's Name: Michael Kalish
First Author's Name: Michael Kalish
First Author's Affiliation: University of Louisiana, Lafayette
Title: Iterated learning, diffusion chains and cumulative cultural evolution

Abstract: Mathematical results from Markov chains suggest that the diffusion of knowledge through intergenerational transmission should result in convergence to the prior, if the agents involved are Bayesian. I'll consider some attempts to demonstrate this empirically with an efficient experimental design. The evidence from iterated category generalization will suggest that convergence is to the prior, rather than something rather different. I'll attempt to examine the

consequences of accepting this view of iterated learning.

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Fifth Author's Name:	Dearne Sanday
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Sixth Author's Name:	Rebecca Nicholson
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Title:	Essential ingredients: Optimizing anticipatory task-set reconfiguration
Abstract:	Anticipatory task-set reconfiguration refers to the activation of task rules in anticipation of an impending change in task leading to a reduction in the behavioural cost of switching tasks. This process is associated with increased positivity within the cue-stimulus interval (CSI) in the ERP waveforms for switch as compared to repeat trials (differential switch positivity; Karayanidis et al., 2003, Psychophys, 40, 329-348; Nicholson et al., 2005, Psychophys, 42, 540-554). This switch positivity emerges 300-400ms after cue onset and, at long CSI, peaks before stimulus onset. Monsell and Mizon (2006, JEP:HPP, 32, 493-516) outlined a series of experimental conditions that increase the activation of task-set reconfiguration as measured by reduced behavioural switch cost. These include incentives to reward prepared performance, low probability of switch trials and, to a lesser degree, blocking CSI manipulation. In the present study, we examined the relative effectiveness of these manipulations against a common baseline condition using a task-cuing paradigm with fixed response-stimulus interval and two cues per task-set. Behavioural and ERP measures of task-set reconfiguration were measured. Switch probability produced the largest effect on behavioural switch cost, reduction in switch cost and switch positivity. Incentives increased overall task readiness as evidenced by faster RT and larger stimulus preceding negativity (SNP) but RT switch cost and switch positivity was affected only for fast responders only. Randomised CSI manipulation increased task readiness and reduced switch cost at the longest CSI. Results support strategic influence on activation of task-set reconfiguration and define conditions for optimizing preparation.

Speaker's Name:	Woojae Kim
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Title:	Model Selection with Data under Individual Differences
Abstract:	Hierarchical modeling has been demonstrated as a good way of modeling data with individual differences (Rouder and Lu, 2004; Navarro et al., 2006). In a situation where the size of data available from each subject is small and individual

differences clearly exist, hierarchical modeling provides far more accurate model estimation than modeling either individual or averaged (or aggregate) data. Can we expect the same kind of benefit from hierarchical modeling for the model selection problem? That is, does a model selection judgment made with hierarchical models represent a better decision than that with models of individual or aggregate data in a situation like the above? The present study investigates this question. By taking models from different modeling areas and employing simulation approaches, this study evaluates the decision performance of model selection with hierarchical models, in comparison to model selection with models of individual and aggregate data. Predictive accuracy, which is operationalized by the discrepancy of the selected model from the true, generating model, is used as a criterion for the decision performance. The simulation design includes the variation of sample size within a subject and the different degrees of individual differences. The results demonstrate that hierarchical modeling provides better decision making for model selection.

Speaker's Name: Krystal Klein
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First Author's Affiliation: Indiana University
Second Author's Name: Chen Yu
Third Author's Name: Richard Shiffrin
Third Author's Affiliation: Indiana University
Title: What You See is What You Learn
Abstract: Recent studies suggest that both adults and infants can potentially solve the reference uncertainty problem in language learning through the use of cross-situational statistical information (e.g. Yu & Smith, 2007). Here we present data from several new experiments wherein adults are exposed to a rapid series of learning trials containing uncertainty in sound-to-picture mappings, but in which this uncertainty is resolved across multiple trials. By monitoring the eye movements of adult participants with various degrees of initial knowledge about sound-to-picture mappings, we provide added constraints upon models of temporally-extended statistical language learning (Yu, Smith, Klein & Shiffrin, 2007).

Speaker's Name: Maria Kozhevnikov
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First Author's Affiliation: George Mason University
Title: The role of immersivity in three-dimensional spatial transformations
Abstract: The majority of experimental studies on 3D visual-spatial processing have been conducted using traditional 2D displays. We were interested in the contribution of immersion to 3D image transformations and compared subjects' performance on spatial transformation tasks within traditional 2D, 3D non-immersive (stereo glasses), and 3D-immersive (head mounted display with position tracking) environments. Fifteen participants completed perspective-taking test where they imagined transforming their own perspective to another perspective in a computerized scene

and pointed to one of several objects from the new perspective. In addition, the participants completed a Shepard and Metzler Mental Rotation Task, in which they were asked to mentally rotate 3D objects along the picture (X), vertical (Y), or depth (Z) axes. While the patterns of subjects responses were not significantly different in 2D and 3Dnon-immersive environment, we found a unique pattern of responses in 3D immersive environment, suggesting that immersion triggered significantly greater use of body-related egocentric object coding and visuo-motor strategies than two other non-immersive environments. In particular, while the subjects used scene-based spatial frame of reference in non-immersive environments, they use viewer-center encoding and body-related frame of reference while performing spatial transformation tasks in a 3D immersive environment. Overall, our findings suggest that 3DI environments are different from 3D non-immersive and 2D traditional environments, and that only 3D immersive environments provide adequate information for building the spatial reference frame crucial for high-order motor planning and egocentric encoding.

L

Speaker's Name: Daniel Lafond

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Title: Testing the predictive accuracy of decision tree models of categorization

Abstract: This work examines the descriptive and predictive accuracy of three decision tree models of categorization adapted from Trabasso, Rollins and Shaughnessy (1971). These models aim to provide a quantitative account of categorization response times, choice proportions and typicality judgments at the individual-participant level. Study I modeled results from Cohen and Nosofsky s (2003) experiment. Overall, the decision tree models achieved comparable fits to that of two exemplar models, the EGCM-RT (Lamberts, 2000) and the EBRW-PE (Cohen & Nosofsky, 2003). In Study II, we replicated and extended Cohen and Nosofsky's experiment by asking participants to give subjective typicality ratings for each stimulus. A post-test phase called the four-questions game (Sayeki, 1969) provided the constraints required to systematically identify a unique decision tree for each participant. Model I, II and III showed increasingly good fits to the data, which follows from their respective complexity and flexibility. However, there is a risk that more flexible models provide better fits simply by adjusting to noise in the data (overfitting). We compared the predictive accuracy of Model I, II and III using a cross-validation procedure. The predictive accuracy of the three models was generally good, though a different degree of overfitting was observed depending on the model, on the dependent variable and on the number of trials in the test phase of the experiment (i.e., the level of noise). This test provides a challenging new benchmark for comparing categorization models.

Speaker's Name: Stephan Lewandowsky
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Second Author's Name: Daniel Little
Second Author's Affiliation: University of Western Australia
Title: The Two Identities of Probability Learning: Categorization and Partitioned Function Learning

Abstract: In multiple cue probability learning (MCPL), people learn to predict a discrete outcome on the basis of imperfectly valid cues. Although the paradigm is superficially similar to category learning, the fact that people often match the probability of their responses to the validity of the cues suggests that MCPL is also related to function learning. We report three experiments that sought to bridge categorization and function learning within an MCPL paradigm by adapting the knowledge partitioning methodology introduced by Yang and Lewandowsky (2003). The results indicate that MCPL can be performed either as a categorization or as a function learning task, and that individual participants choose one or the other approach. The difference in performance is best captured by different types of representations; an exemplar model better captures categorical performance, whereas a cue-abstraction model better captures function-driven performance. We conclude that MCPL, like other concept acquisition paradigms, might best be understood by a mixture-of-experts approach.

Speaker's Name: Hsin-I Liu
First Author's Name: Hsin-I Liu
First Author's Affiliation: University of the Incarnate Word
Title: Communication as a disguise of symbolic violence: Bourdieu's structural analysis of socio-cultural domination

Abstract: This paper will argue that the most important theoretical question for Bourdieu is how symbolic violence is reproduced and transmitted in contemporary capitalist societies. Symbolic violence can be briefly defined as "the form of domination that is only exerted through the communication in which it is disguised." In other words, Bourdieu provocatively claims that the relations of communication are always interwoven with relations of power, and that no human communication is without socio-cultural domination. Such a domination is structured in capitalist societies and insured not by ideological control but by institutional mechanisms—especially those on "the reinforcement of predispositions." Moreover, Bourdieu indicates that the mode of domination is always inscribed in communication. "The whole content of communication (and not just the language used)," as he eloquently puts it, "is unconsciously modified by the structure of the relationship between speakers." However, in my view, the major theoretical difficulty facing Bourdieu is how the dominant class—those who have material and symbolic capitals—ensures that the members of society (especially the dominated class) accept or reproduce their discourses of social reality, i.e. symbolic violence, when different interpretants have different interpretations and the process of interpreting is continuously changing. The ultimate question becomes: how does the dominant group

guarantee individual dissensions and practical tactics to be confined to minimum and local levels that totally suppress major forms of challenge or threat to this dominating structure of symbolic violence in capitalist societies?

Speaker's Name: Casimir Ludwig

First Author's Name: Casimir Ludwig

First Author's Affiliation: University of Bristol

Title: Temporal integration underlying saccadic eye movement decisions

Abstract: Saccadic eye movements are among the most frequent perceptual decisions humans make. In recent years more general models of perceptual decision making, such as signal detection and sequential sampling models, have been applied to account for where observers look (and in the case of sequential sampling models when they look there). I will review applications of these models in the oculomotor domain, with particular emphasis on models that assume sensory evidence in favour of a number of potential saccade targets is integrated over time up to some criterion level. Next, I will present data from a number of studies that illustrate this strategy does not always hold. When observers are required to select a saccade target on the basis of luminance contrast in the presence of external noise, their eye movement decisions appear to be based on a very limited and fixed epoch of sensory evidence. This epoch is not adjusted according to the strenght of this evidence. Finally, I will present a number of alternative models and assess their ability to account for the experimental data. These models allow for inferences to be made regarding 1) the nature of the temporal filter that provides the input to a downstream "decision unit"; 2) whether the decision unit integrates the signal over time or compares momentary values against some threshold; 3) the duration of the integration/sampling window.

M

Speaker's Name: Kenneth Malmberg

First Author's Name: Kenneth Malmberg

First Author's Affiliation: University of South Florida

Title: Towards an understanding of individual differences in episodic memory: Modeling the dynamics of recognition memory.

Abstract: There is considerable variability in the level of performance of memory tasks both between and with populations of individuals. A fundamental question is whether and to what degree this variability reflects random versus systematic influences. To the extent that systematic influences are responsible for some of the variability, moreover, to what degree is performance influenced by structural versus strategic influences? In this talk, I will present a theory in which memory tasks can be performed in multiple ways. The strategy adopted is the one that the subject believes will achieve a desired level accuracy in shortest amount of time. To better understand the sources of variability in memory performance, I will describe how associative recognition performance is affected by different structural and strategic

factors.

Speaker's Name:	Gail McKoon
First Author's Name:	Gail McKoon
First Author's Affiliation:	Ohio State University
Second Author's Name:	Roger Ratcliff
Title:	Psycholinguistic and Corpus Investigations of Verbal Event Structures
Abstract:	Lexical semantic representations for verbs of two classes are investigated: "manner of motion" verbs (e.g., run) and "change of location" verbs (e.g., arrive). The lexical structures of change of location verbs are complex in that they include a location and a change to that location by the entity engaging in the verbal event. The structures of manner of motion verbs are simpler because they include only an entity engaging in an activity. This differential complexity is demonstrated empirically in three ways: compared to change of location verbs, lexical access is significantly faster for manner of motion verbs, as shown by lexical decision response times; short-term memory is significantly better for manner of motion verbs, as shown by response times for yes/no recognition; and sentence comprehension is significantly faster for manner of motion verbs, as shown by sentence reading times.

Speaker's Name:	Padraic Monaghan
First Author's Name:	Padraic Monaghan
First Author's Affiliation:	University of York
Second Author's Name:	Morten Christiansen
Second Author's Affiliation:	Cornell University
Third Author's Name:	Nick Chater
Third Author's Affiliation:	University College London
Title:	Language acquisition and the arbitrariness of form-meaning mappings
Abstract:	The relationship between the sound of a word and its meaning is arbitrary (de Saussure, 1916): Whereas &#65533;cow&#65533; and &#65533;sheep&#65533; have many conceptual similarities, the sounds of the words used to refer to them are very distinctive, whereas &#65533;sheep&#65533; and &#65533;ship&#65533; have rather distinct meanings but similar sounds. Such arbitrariness in the meaning-form mapping has appealed to philosophers as an elegant property of communicative systems that enables disengagement of the language&#65533;s reliance on the immediate environment and the generation of abstract, hierarchical terms. But systematic mappings between patterns are very easy to learn, whereas arbitrary mappings are extremely computationally expensive, so what is the advantage of arbitrariness in the lexicon? We contend that multiple cues converge to enable learning: The environmental context defines the general meaning of the word, and the phonology of the word then identifies the particular referent intended by the speaker by maximising the information in the signal. We present corpus analyses of child directed speech and computational simulations of acquisition of form-meaning mappings which indicate that multiple cues provide a solution to this problem of language learning.

Speaker's Name: Jay Myung
First Author's Name: Jay Myung
First Author's Affiliation: Ohio State University
Second Author's Name: Daniel Navarro
Second Author's Affiliation: University of Adelaide
Third Author's Name: Mark Pitt
Third Author's Affiliation: Ohio State University
Title: Does Response Scaling Cause the Generalized Context Model to Mimic a Prototype Model?

Abstract: Exemplar and prototype accounts of categorization phenomena differ primarily in terms of the manner in which category information is represented. However, the models also make auxiliary assumptions that are instantiated as model parameters. Smith and Minda (1998) argue that the response scaling parameter gamma in the exemplar-based Generalized Context Model (GCM) makes the model unnecessarily complex, and allows it to mimic prototype representations. We estimate the complexity of GCM with and without the gamma parameter, as well as that of a prototype model. We then go on to assess the extent to which the models mimic each other's behavior. The gamma parameter does increase the complexity of the model, but this complexity only allows partial mimicry. Furthermore, if we adopt Minimum Description Length as the measure of model performance, the models become highly discriminable.

M

Speaker's Name: Angela B. Nelson
First Author's Name: Angela B. Nelson
First Author's Affiliation: Indiana University
Second Author's Name: Richard M. Shiffrin
Second Author's Affiliation: Indiana University
Title: How Experience Shapes Memory

Abstract: Novel items (Chinese characters) were trained in a visual search task to have differential experience. The induced frequency differences were shown to produce marked effects on episodic and implicit memory transfer tasks (Nelson & Shiffrin, 2006). Because each novel item is randomly assigned for each participant to a frequency category, these results are inconsistent with the REM model account of frequency effects (Shiffrin & Steyvers, 1997). This account posited higher frequency items to have higher frequency features. We present a new variant of the REM model incorporating contextual diversity in an item's representation, particularly the diversity imposed by different item sets simultaneously in short term memory during training: Features of such nearby items join a target item's representation. This model is a simplification of the REM-M model proposed by Mueller and Shiffrin (e.g. 2006), and is related to the ideas found in the TCM model of Howard and Kahana (e.g. 2002). Because the higher frequency items are seen in a larger variety of contexts than lower frequency items, the higher frequency items develop a more diverse representation in the lexicon. The model is shown to account for frequency effects found by Nelson and Shiffrin (2006).

Speaker's Name: Richard W.J. Neufeld
First Author's Name: Kristine Boksman
First Author's Affiliation: Hotel Dieu Hospital
Second Author's Name: Jodi Miller
Second Author's Affiliation: University of Western Ontario
Third Author's Name: Peter Williamson
Third Author's Affiliation: University of Western Ontario
Fourth Author's Name: Dick Drost
Fourth Author's Affiliation: University of Western Ontario
Fifth Author's Name: Ravi Menon
Fifth Author's Affiliation: Robarts Research Institute
Sixth Author's Name: Richard W.J. (Jim) Neufeld
Sixth Author's Affiliation: University of Western Ontario
Title: When Events are Processes: 4-T Event-Related Monitoring of Effective Connectivity of Formally Modeled Encoding Deficit in Schizophrenia

Abstract: Events in event-related fMRI and other evoked neurophysiological-response studies have comprised external-stimulus occurrences, such as onset of a visual array, or memory set, presentation of a visual target or memory probe, and so on. Of principle interest, however, are not the exogenous stimulus transitions themselves, but the cognitive processes to which they give rise. Such processes may be constituents of more complex multi-process tasks, such as the probe encoding, memory scanning, and response operations in trials of a memory-search paradigm, set in motion by the appearance of the probe. Remaining in its context of collateral processes (e.g., encoding a probe so as to ascertain its presence in the memory set) arguably enhances the ecological validity of the target process, but raises challenges of ferreting out its corresponding neurocircuitry. Conversely, dismantling the multi-process complex and paradigmatically isolating the target process risks distorting composition of the latter from that of its intact multi-process format. Dynamical stochastic models of cognition can help isolate intra-trial epochs of target process occurrence, thus complementing anatomical regions of fMRI measurement interest with times of interest. This strategy is used to estimate within-trial epochs of probe encoding in a memory search task, among schizophrenia participants and controls. Encoding deficit has been deemed a clinically significant and central aspect of schizophrenia cognition. Results support the validity of formal model application by identifying effective connectivity (of the anterior cingulate cortex) distinguishing this deficit.

Speaker's Name: Danko Nikolic
First Author's Name: Danko Nikolic
First Author's Affiliation: Max-Planck Institute for Brain Research; Frankfurt Institute for Advanced Studies
Second Author's Name: Julia Biederlack
Second Author's Affiliation: Mibeg Institute
Third Author's Name: Peter Uhlhaas
Third Author's Affiliation: Max-Planck Institute for Brain Research
Fourth Author's Name: Wolf Singer
Fourth Author's Affiliation: Max-Planck Institute for Brain Research; Frankfurt Institute

for Advanced Studies

Title: The role of neuronal synchrony in perception of brightness

Abstract: We investigated the neuronal correlates of perceived brightness in cat visual cortex by using parallel recordings from multiple units, and in human cortex by using EEG. If enhancement in perceived stimulus brightness is induced by a phase offset between centre and surround gratings, neuronal discharge rates are unchanged but synchronization increases between neurons responding to the center grating. These changes in synchronization correlate well with changes in human perception of stimulus brightness. We investigated also the power and the frequency of the gamma oscillations in human scalp EEG and in response to the same stimuli. The results indicate that, in cerebral cortex, the modulation of synchronicity of responses is complementary to rate changes as a mechanism that enhances the saliency of neuronal responses.

O

Speaker's Name: Clark Ohnesorge

First Author's Name: Clark Ohnesorge

First Author's Affiliation: Carleton College

Second Author's Name: Aaron Fanta

Second Author's Affiliation: Carleton College

Third Author's Name: George Kachergis

Third Author's Affiliation: Carleton College

Title: Color Recognition And Laterality: Does Language Affect Color Processing?

Abstract: Several recently published papers report effects consistent with the Whorfian hypothesis, which in broad terms suggests that ones language exerts an influence on perceptual and cognitive tasks. In many cases the effect is claimed to influence lower level tasks such as perceptual identification. Using a color detection task we replicate the findings of a representative paper, (Gilbert, Regier, Kay & Ivry, PNAS, 2006) and extend them through several modifications of the basic task in designs that use response time as the dependent variable. Our findings agree with others that language exerts an influence in this task, but in contrast to the typical exposition of Whorf s position our data suggest that the influence is not facilitory. We also present data from a study employing a 2afc task which allows a stronger test of the claim that linguistic influence exerts itself at the perceptual level. In this task we find no evidence to support the claim of an influence of language at the perceptual level.

Speaker's Name: Chrispine OMONDI

First Author's Name: Chrispine OMONDI

First Author's Affiliation: Coffee Research Foundation, P O Box 4, 00232 Ruiru, Kenya.

Title: COFFEE QUALITY ASSESSMENT: THE CASE OF TWO KENYAN CULTIVARS, RUIRU 11 AND SL 28

Abstract: It is widely recognized that coffee quality is the single most important factor that determines coffee prices in the international market. The prominence given to Kenya coffee world-wide is derived from the fine quality coffee it supplies

to the world market. Therefore selection for desirable attributes of coffee quality has been the subject of detailed studies in the development of coffee varieties in Kenya. Quality parameters of two Kenya coffee cultivars Ruiru 11 and SL 28 believed to be similar in their major quality attributes were assessed to determine factors that influence the final beverage quality. Both varieties were grown in two locations in different agro-ecological zones. The parameters assessed were bean quality, beverage quality and overall class. The data was subjected to multivariate hierarchical cluster analysis based on Eucledian Distance Matrix Method. The study revealed that the growing environment had a strong effect on the expression of quality parameters exhibited by Ruiru 11 and SL 28. The study also tested the consistency of cup tasters to evaluate similar samples and arrive at similar results. It was revealed that there was significant difference among cup-tasters. In other words, when cup tasters were presented with similar blind samples for assessment, the results varied from one cup-taster to the other. The study recommends proper management of the growing environment to obtain the desired quality attributes and branding to meet the preferred taste of different consumers.

Speaker's Name: Chrispine OMONDI

First Author's Name: Chrispine OMONDI

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Abstract: It is widely recognized that coffee quality is the single most important factor that determines coffee prices in the international market. The prominence given to Kenya coffee world-wide is derived from the fine quality coffee it supplies to the world market. Therefore selection for desirable attributes of coffee quality has been the subject of detailed studies in the development of coffee varieties in Kenya. Quality parameters of two Kenya coffee cultivars Ruiru 11 and SL 28 believed to be similar in their major quality attributes were assessed to determine factors that influence the final beverage quality. Both varieties were grown in two locations in different agro-ecological zones. The parameters assessed were bean quality, beverage quality and overall class. The data was subjected to multivariate hierarchical cluster analysis based on Eucledian Distance Matrix Method. The study revealed that the growing environment had a strong effect on the expression of quality parameters exhibited by Ruiru 11 and SL 28. The study also tested the consistency of cup tasters to evaluate similar samples and arrive at similar results. It was revealed that there was significant difference among cup-tasters. In other words, when cup tasters were presented with similar blind samples for assessment, the results varied from one cup-taster to the other. The study recommends proper management of the growing environment to obtain the desired quality attributes and branding to meet the preferred taste of different consumers.

P

Speaker's Name: Giovanni Pagliuca
First Author's Name: Giovanni Pagliuca
First Author's Affiliation: University of York
Second Author's Name: Padraic Monaghan
Second Author's Affiliation: University of York
Title: Dissociating reading and lexical decision: the case of neglect dyslexia

Abstract: Neglect Dyslexia is a reading disorder usually associated with visuospatial neglect. This syndrome has been at the center of attention because it gives unique insights into the reading system. Despite the impaired reading performance, neglect patients perform nearly normally when required to make a lexical decision judgment on the same stimuli. This behavior has been interpreted in terms of a dual route model of reading where a preserved lexical route is used to perform the lexical decision task and an impaired nonlexical phonological route is used for naming. We trained a simple pdp model to read single words. The model naturally discriminates between words and nonwords over a measure of familiarity taken at the phonological output level. We then lesioned the network in order to simulate neglect dyslexia and replicate the dissociation between the two tasks. We also present results from an empirical investigation run with healthy participants which aimed at inducing neglect dyslexia and reproducing the dissociation. We propose that a distributed network can offer a more parsimonious explanation of the pattern shown by neglect dyslexia patients.

Speaker's Name: John Palmer
First Author's Name: John Palmer
First Author's Affiliation: University of Washington
Second Author's Name: Cathleen Moore
Second Author's Affiliation: Pennsylvania State University
Title: Using foils to measure spatial tuning functions for visual attention

Abstract: Our goal is to measure the spatial extent of isual attention sing a psychophysical method t at can be compared across b havior and ph siology. To o so, we employ a selective att tion task in which observers try to detect a visua target while ignoring a nearby foil that is ide tical to the target except for location. We var both the contrast of the foil and the dis anc between the foil and the relevant location. The appropriat way to quantify spatial sel ctivity in this task depends on ow attention mo ulates the effect of contrast. Two of the m st common hypotheses for attentional modulation are contrast gain versus an all-or-none mixture. In contrast gain, the effect of the foil is attenuated by scaling its effective contrast; in all-or-none mixtures, the effect of the foil is completely blocked on some trials but not others. Contrary to prior studies that have been consistent with contrast gain, our results clearly disconfirm the predictions of the contrast gain hypothesis. Instead, the results are consistent with the all-or-none hypothesis. One possible reason for this discrepancy is a difference in the task. In most prior studies, the relevance of different locations was varied in a divided attention task; in this study, the foil was completely irrelevant in a selective attention task. We are now using this selective attention task

to measure the spatial tuning function of visual attention.

R

Speaker's Name: Jeroen Raaijmakers
First Author's Name: Jeroen Raaijmakers
First Author's Affiliation: University of Amsterdam
Second Author's Name: Em&#65533;ke Jakab
Second Author's Affiliation: University of Amsterdam
Title: Do stronger items show more retrieval inhibition?
Abstract: Experiments on retrieval inhibition show that retrieval practice on some category items reduces recall of the nonpracticed items. Anderson's inhibition theory proposes that retrieval inhibition should be larger for stronger items since these items are more likely to interfere during retrieval practice. To test this hypothesis, we manipulated the strength of the nonpracticed items in two different ways. In the first experiment we made use of the fact that there is a strong within-category serial position effect with the first presented items being recalled much more often than later items. However, compared with control items from the same serial positions, the inhibition effect was not larger for the stronger items (if anything, the effect was smaller). A similar result was obtained when strength was manipulated by presenting some of the "to-be-inhibited" items twice. All in all, we have found no support for the hypothesis proposed by Anderson.

Speaker's Name: Bill Ramsey
First Author's Name: Bill Ramsey
Title: Defending Representational Skeptics
Abstract: Many proponents of a dynamic approach to understanding cognition (most notably, Beer, 1995, 2003) have challenged the popular view that even simple cognitive systems must employ internal representations to perform various tasks in a changing environment. Unsurprisingly, this challenge has provoked a strong response from the pro-representational crowd. One of the most popular lines of rebuttal, coming largely from philosophers (Clark & Torbio, 1995; Bechtel, 2001), has been to claim that dynamicists are mistaken about what is needed for a representational system -- claiming that far less is required than the skeptics assume. The aim of my talk will be to show that it is actually the philosophers who are confused about these matters, and that skeptics like Beer are quite correct to avoid characterizing the inner workings of their models in representational terms.

Speaker's Name: Roger Ratcliff
First Author's Name: Roger Ratcliff
First Author's Affiliation: The Ohio State University
Second Author's Name: Gail McKoon
Second Author's Affiliation: The Ohio State University
Title: Diffusion Model Analyses of Aging
Abstract: We will present recent interesting insights from diffusion model analyses of performance in cognitive tasks, comparing college age subjects and 65-90 year old subjects.

Speaker's Name: Adina Roskies
First Author's Name: Adina Roskies
First Author's Affiliation: Dartmouth College
Title: What can neuroscience tell us about free will
Abstract: I will discuss the problem of free will in the context of new information from neuroscience. Specifically, I will consider whether the picture of decision-making that is emerging from neuroscience provides reason to think our actions are determined or not under our control. I provide several reasons to think that our philosophical positions about the correct relation between freedom and determinism is immune to input from the biological sciences, but I also argue that dependency on determinism is misconceived. Instead, I outline another view, and show how our philosophical views about free action can be consistent with a mechanistic model of brain function, and illustrate this by reference to current neuroscientific work.

S

Speaker's Name: Jean-Christophe Sarrazin
First Author's Name: Jean-Christophe Sarrazin
First Author's Affiliation: UMR CNRS Mouvement et Perception
Second Author's Name: Emmanuel Dauc&#65533;
Second Author's Affiliation: UMR CNRS Mouvement et Perception
Third Author's Name: Axel Cleeremans
Third Author's Affiliation: Universit&#65533; Libre de Bruxelles
Title: Psychological hysteresis in sudden awareness: a functionnal correlate of recurrent processing
Abstract: In this study we explore the idea that sudden motor awareness emerges as the result of global competition biased by top-down modulation, which implements global constraint satisfaction. The contents of conscious experience at some point in time thus reflect the application of the brain&#65533;s knowledge on the current situation so as to yield the most adapted representations in the service of action. Such processes in turn critically depend on recurrent, or reentrant processing. Subjects carried out a reaching movement, which was disturbed by a haptic arm on some trials. Participants (1) pointed at the target as accurately as possible before returning to the start position, making a visuomotor adjustment to the target if required and (2) reproduced the spatial path of the movement they had just made, as accurately as possible, to give an indication of their awareness of the pointing movement. We analysed the spatial disparity between the initial and the reproduced movements on those with a movement disturbance. In this framework, we assume that once a recurrent neural activity due to the disturbance has reached a certain threshold, the visuomotor adjustment is suddenly consciously perceived so that the conscious activity may show hysteresis---as Libet (1973) has claimed---since the activity is probably held above a threshold to some extent by some mechanism, such as loops with positive feedback. This activity corresponds to the neural correlates of consciousness (NCC). Introducing a minimalist dynamics model, we highlight the computational principles of the conscious perception process.

Speaker's Name: Lawrence Shapiro
First Author's Name: Lawrence Shapiro
First Author's Affiliation: University of Wisconsin - Madison
Title: Representation and the Philosophy of Science
Abstract: Embodied, Embedded, and Situated Cognitivists have in recent years offered accounts of cognition that seek to minimize or modify traditional conceptions of representation in cognitive explanation (see, e.g. Beer 1993, Thelen xxxx, Brooks 1991). Some of these efforts draw on notions like simplicity, unification, and indispensability that philosophers of science have studied for decades. However, it is not clear how concepts like these "fit" into theories of cognition (how are they to be measured?), and so appeals to these notions in order to justify a particular stand on representation are hard to evaluate. In this paper I examine some work in E-E-S cognition in order to illustrate difficulties that arise when trying to justify a minimal or modified conception of representation through application of ideas like simplicity, unification, and indispensability.

Speaker's Name: Richard Shiffrin
First Author's Name: Andrew Cohen
First Author's Affiliation: Indiana University
Second Author's Name: Adam Sandborn
Second Author's Affiliation: Indiana University
Third Author's Name: Richard Shiffrin
Third Author's Affiliation: Indiana University
Title: Model Selection with Little Data: Analyze by Groups or Individuals?
Abstract: In selecting a best model it is often better to use individual analysis (fitting models separately to individuals) than group analysis (fitting the combined data): Grouping can distort the form of data, and different individuals might perform the task using different processes and parameters. This situation can change dramatically when there is only a small amount of data per individual, due to the possible introduction of distortions and biases into individual analyses. We show this with a simulation technique in which data are generated from each of two known models, each with parameter variation across simulated individuals. We examine how well the generating model and its competitor each fare in fitting (both sets of) the data, using both individual and group analysis. We examine the accuracy of model selection (the probability that the generating model will be selected by the analysis method.) Trials per condition and individuals per experiment are varied systematically. Four pairs of cognitive models were compared: exponential vs. power models of forgetting; GCM (two versions) vs. prototype models of categorization; and FLMP vs. LIM models of information integration.

Speaker's Name: Sverker Sikstr&#65533;m
First Author's Name: Sverker Sikstr&#65533;m
First Author's Affiliation: Lund University Cognitive Science
Title: Exploring the High Dimensional Semantic Space in the Brain
Abstract: Processing of words from semantic word classes activates networks of semantic representations in the human brain.

Earlier research has investigated this by subtracting brain activity evoked from two semantic word categories chosen prior to the experiment. Here we show that arbitrary semantic representations in the brain can be investigated by utilizing high dimensional semantic spaces, which can be generated from the information of co-occurrence in huge text corpora. This method is applied to data were subjects study words list during EEG recording. We correlate estimates of semantic distance with ERP potentials to study semantic representations in the brain. The results show that a large number of different semantic categories show specific topographical patterns across time. This method has a number advantages including studying of arbitrary word classes, and single concepts. Furthermore, semantic space does not require a non-semantic control condition, nor trial-by-trial matching between the psychological construct and brain measure.

Speaker's Name:	George Sperling
First Author's Name:	George Sperling
First Author's Affiliation:	University of California, Irvine
Second Author's Name:	Ian J. Scofield
Second Author's Affiliation:	University of California, Irvine
Third Author's Name:	Arvin T. Hsu
Third Author's Affiliation:	University of California, Irvine
Title:	A general computational theory of the distribution of visual spatial attention
Abstract:	We derive a computational theory of the distribution of visual attention using a linear systems approach. First, we measure an observer's ability to distribute attention sinusoidally along rows or columns in a 12x12 array that contains 1 target (a large disk) on one of 72 attended locations, 10 false targets among 72 unattended locations (to force the observer to ignore unattended locations), and distractors (small disks) elsewhere (Gobell, Tseng, & Sperling, Vision Research, 2004, 19, 1273-1296). The basic sinusoidal data then enable the theory to make accurate, completely parameter-free predictions of the same observer's ability to distribute spatial attention in response to arbitrarily complex 72-square requested patterns of attentional distribution. The theory contains (1) a spatial acuity function that describes the decline of visual processing capacity with retinal eccentricity, (2) an attention modulation-transfer function that describes the decline of attentional conformability with increasing spatial frequency, (3) multiplicative combination of (1) and (2), (4) random decision noise, and (5) a decision process that selects the most likely target location.

Speaker's Name:	Mark Steyvers
First Author's Name:	Mark Steyvers
First Author's Affiliation:	University of California, Irvine
Second Author's Name:	Tom Griffiths
Second Author's Affiliation:	University of California, Berkeley
Title:	Google and the Mind: Predicting Fluency with PageRank
Abstract:	If human cognition approximates optimal solutions to the computational problems posed by our environment, then we

should expect to find correspondences between human behavior and that of other systems that successfully solve similar problems. Human memory and internet search engines face a shared computational problem, needing to retrieve pieces of information from a stored set in response to a query. Consequently, we explore whether they employ similar solutions, testing whether we can predict human performance on a fluency task using PageRank, a component of the Google search engine. In this task, people are shown a letter of the alphabet and asked to name the first word that comes to mind beginning with that letter. We show that PageRank, computed on a semantic network constructed from word association data, outperforms word frequency and the number of words for which a word is named as an associate as a predictor of the words that people produce in this task. We identify two simple process models that could support this apparent correspondence between human memory and internet search, and relate our results to previous rational models of memory.

Speaker's Name: Mark Steyvers
First Author's Name: Mark Steyvers
First Author's Affiliation: University of California, Irvine
Second Author's Name: Pernille Hemmer
Second Author's Affiliation: University of California, Irvine
Title: A Bayesian Model for Reconstructive Memory
Abstract: It is well established that prior knowledge influences reconstruction from memory, but the specific interactions of memory and knowledge are unclear. Extending work by Huttenlocher et al. (1991, 2000) we propose a hierarchical Bayesian model of reconstructive memory in which prior knowledge interacts with episodic memory at multiple levels of abstraction. The combination of prior knowledge and noisy memory representations is dependent on familiarity. We present empirical evidence of the hierarchical influences of prior knowledge, showing that the reconstruction of familiar objects is influenced toward the specific prior for that object, while unfamiliar objects are influenced toward the overall category.

Speaker's Name: Adrian von M�hlenen
First Author's Name: Adrian von M�hlenen
First Author's Affiliation: University of Warwick, Coventry, UK
Second Author's Name: Markus Conci
Second Author's Affiliation: Ludwig-Maximilians-University, Munich, Germany
Title: The effect of inter-trial priming on attentional capture by color changes
Abstract: The focus of attention depends greatly on one's goals and expectations. Yet some events still break through and interrupt observers, regardless of their current task set. Previous studies have shown that a new object is more salient in capturing attention than an abrupt change in an object, such as color change. One exception is a study by Lu and Zhou (2005, PBR), which found a very strong capture effect for color changes. In this study we replicated this finding and showed that it strongly depends on the design that was used, where the color of the change item and the color of the other

search items were randomly switched between trials. When the color-to-stimuli assignment was fixed within a block the capture effect was significantly reduced. Two further experiments showed that the capture effect in the switch condition is not so much due to the changing color in the singleton (change) item but more due to the changing color in the other items. These results will be discussed considering top-down modulation and inter-trial priming effects.

W

Speaker's Name: Eric-Jan Wagenmakers

First Author's Name: Eric-Jan Wagenmakers

First Author's Affiliation: University of Amsterdam

Second Author's Name: Diane Pecher

Third Author's Name: Rene Zeelenberg

Title: A REM Model for Animal Decision

Abstract: In animal decision, people have to decide quickly whether or not words such as "mountain" or "parrot" refer to an animal. This task requires that people access both orthographic and semantic information. Previous research has shown that (1) activation of semantic information occurs before orthographic processing is complete; (2) performance for typical animals (e.g., dog) and non-animals (e.g., computer) is better than performance for less typical animals (e.g., shrimp) and non-animals (e.g., tree); (3) "non-animal" decisions can be faster than "animal" decisions. Here we introduce a REM model to account for these findings. In the model, orthographic and semantic information accumulate over time. Semantic information from a particular lexical representation is weighted by the posterior probability that the representation matches the stimulus orthographically. The present research supports the notion of parallel access to a feature-based semantic representation of composite concepts such as "animalness".

Speaker's Name: Christoph Weidemann

First Author's Name: Christoph Weidemann

Second Author's Name: David Huber

Second Author's Affiliation: University of California, San Diego

Third Author's Name: Richard Shiffrin

Title: Prime diagnosticity in short term repetition priming

Abstract: We will present experiments that manipulated prime duration and prime diagnosticity in a visual forced-choice perceptual identification task with repetition priming. The strength and direction of prime diagnosticity produced marked effects on choice accuracy, but those effects were resistant to subsequent changes of diagnosticity. In additional experiments, participants learned to associate different diagnosticities with primes of different durations, but not with primes presented in different colors. Regardless of prime diagnosticity, preference for a primed alternative covaried negatively with prime duration. These findings suggest that prime diagnosticity affects perception not through strategic responding but by altering the implicit discounting of evidence which remains important regardless of prime diagnosticity.

Z

Speaker's Name: Johannes Ziegler
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Second Author's Name: Marco Zorzi
Second Author's Affiliation: University of Padua
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Title: Nested Incremental Modeling In The Development Of Computational Theories: The CDP+ Model Of Reading Aloud

Abstract: There are at least three different types of computational model that have been shown to account for various facets of both normal and impaired single word reading: 1) the connectionist Triangle model; 2) the Dual-Route Cascaded model; and 3) the Connectionist Dual Process model. In this article, we identify major strengths and weaknesses of these models. In the spirit of nested incremental modeling, we then present a new Connectionist Dual Process model, CDP+, which builds upon the strengths of two of the previous models while eliminating their weaknesses. Contrary to the Dual-Route Cascaded model, CDP+ is able to learn and produce graded consistency effects. Contrary to the Triangle and the Dual Process model, CDP+ accounts for serial effects and has more accurate nonword reading performance. CDP+ also beats all previous models by an order of magnitude when predicting individual item-level variance on large databases. Thus, we show that building upon existing theories by combining the best features of previous models - a nested modeling strategy that is commonly used in other areas of science but often neglected in psychology &#65533; results in better and more powerful computational models.

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Title: Paying attention through eye movements: A computational and behavioral investigation of the premotor theory of spatial attention

Abstract: The premotor theory of attention maintains that visuospatial attention originates from the activation of the same cortical circuits involved in saccadic planning. In the present study, this was tested by implementing a recurrent neural network model in which spatial attention is produced by feedback effects of saccadic planning in fronto-parietal circuits. The model employs gain-field coding to simulate parietal spatial maps and includes a circuit that performs spatial remapping across memory-guided saccades. Simulations show that the presence of the latter circuit is crucial to account for dissociations between attention orienting and eye movements, which were invoked to disprove the premotor theory of attention. The model offered two novel predictions regarding the role of spatial remapping in attention orienting

that were confirmed in a behavioral study.

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Krystal Klein
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The ASIC Yahoo! Group

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Instructions:

1. **Follow the link http://groups.yahoo.com/group/ASIC2005.**
2. **In order to post messages or reply to others' messages, you must join the ASIC Yahoo! group. Click on the text "Join this group", which should appear on the upper right.**
3. **This will take you to a login screen. If you have any kind of Yahoo! account (mail, chat, photo, etc.), then you will be able to login here. If not, you will be able to quickly and easily sign up for an account by clicking the text "Sign up now."**
4. **Once you have logged in, return to the ASIC2005 group page. Make selections on the left sidebar menu in order to read or post messages.**
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