Contents

1 Welcome at PiF2012!

After many succesful years in Belgium, Psycholinguistics in Flanders goes Dutch in 2012, as it is held in Berg en Dal, close to Nijmegen. Over the years, PiF has established itself as the conference of choice in the Low Countries for young psycholinguists (PhD students and young postdocs). PiF offers them the opportunity to present and discuss their work in talks or posters and meet fellow psycholinguists from all domains of psycholinguistics.

The 11th edition of the PiF conference is being organized by the Donders Institute for Brain, Cognition and Behaviour, the Centre for Language Studies and the Behavioural Science Institute of the Radboud University Nijmegen, and by the Max Planck Institute for Psycholinguistics. PiF is funded by the FWO (Research Foundation Flanders), and is made possible by the support of the Computational Linguistics and Psycholinguistics Research Center (CLiPS) at the University of Antwerp, the Department of Experimental Psychology at Ghent University, and the ConCat research group at KU Leuven.

We are very pleased to announce two keynote speakers: Rasha Abdel Rahman (Department of Psychology, Humboldt University Berlin) and Kathryn Bock (Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign).

We look forward to welcoming you for lively and informal discussion of your psycholinguistic research.

The Organizing Committee,
Iske Bakker
Mirjam Ernestus
Merel van Goch
Asifa Majid
James McQueen
Vitória Piai

2 Program

Wednesday June 6th

09:00-09:55 **Registration and coffee**
Poster set-up for Session 1

09:55-10:00 **Welcome**

10:00-11:20 **Oral session 1: Word recognition**
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10:20-10:40 Florian Hintz - Phonological word-object mapping is contingent upon the nature of the visual environment
10:40-11:00 Alastair Smith - The Tug of War during spoken word recognition in our visual worlds: Insight from a model of language mediated eye-gaze
11:00-11:20 Joost Rommers - Object shape representations in the contents of predictions for upcoming words

11:20-11:40 **Break**

11:40-13:00 **Oral session 2: Syntax & morphology**
11:40-12:00 Anna Czypionka - Object animacy and transitivity in sentence processing
12:00-12:20 Alma Veenstra - Conceptual and grammatical factors in the production of subject-verb agreement
12:20-12:40 Paolo Zandomeneghi - Morphological parsing is affected by syntactic constraints
12:40-13:00 Harm Brouwer - Getting real about Semantic Illusions: Rethinking the functional role of the P600 in language comprehension

13:00-15:00 **Lunch and poster session**
13:30-14:15 Poster session 1A
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15:00-16:00 **Kay Bock: Syntactically speaking**

16:00-16:20 **Break**

16:20-17:20 **Oral session 3: Bilingualism**
16:20-16:40 Dominik Freunberg - Predicting the predictable: Lexical-semantic processing strategies in adult L1/L2 speakers
16:40-17:00 Ihor Biloushchenko - The influence of an absent language on the recognition of interlingual homographs and cognates
17:00-17:20 Eva Van Assche - Local and global control in bilingual language production

17:20-17:40 **Break**

17:40-18:20 **Oral session 4: disorders**
17:40-18:00 Louisa Bogaerts - A Hebb learning account of language impairment in dyslexia
18:00-18:20 Jasmin Pfeifer - An Experimental Study on the Influence of Congenital Amusia on Speech Perception

18:20-19:00 **Social event: a walk in the woods**
Poster set-up for Session 2

19:00- **Dinner**

Thursday June 7th

09:30-10:50	**Oral session 5: Learning, memory & attention**
09:30-09:50	Erin Hawkins - Does the processing of linguistic input depend on what is learnt about it?
09:50-10:10	Juliane Domke - Does working memory capacity affect individual semantic processing differences?
10:10-10:30	Elisah Dhooge - Broadening the role of the verbal self-monitor in speech production: evidence from the taboo picture-word interference paradigm and event-related potentials
10:30-10:50	Vitória Piai - Oscillatory activity in Broca's area during interference in overt picture naming: an MEG study
10:50-11:10	**Break**
11:10-12:30	**Oral session 6: Language & thought**
11:10-11:30	Rebecca Defina - Conceptual Event Units and Grammatical Encoding
11:30-11:50	Joris Van De Cavey - I know what you are saying: beliefs about another's utterances affect own utterance duration
11:50-12:10	Madelein Beveridge - Body-specificity in simple action sentences
12:10-12:30	Jeremy Hammond - Switch Reference Antecedents: Are They on Topic?
12:30-14:30	**Lunch and poster session**
13:00-13:45	Poster session 2A
13:45-14:30	Poster session 2B
14:30-15:30	**Rasha Abdel Rahman: The dynamics of lexical access during language production: a swinging lexical network account**
15:30-15:50	**Break**
15:50-16:50	**Oral session 7: Phonology**
15:50-16:10	Mybeth Lahey - Acoustic reduction in Dutch infant-directed speech
16:10-16:30	Malte Viebahn - Co-occurrence of reduced word forms in spontaneous speech
16:30-16:50	Kodi Weatherholtz - Specificity and Generality in Speaker Adaptation
16:50-17:00	**Closing remarks and poster prize**
17:00-	**Drinks**

3 Abstracts keynotes

Rasha Abdel Rahman
Chair: Asifa Majid

Wednesday June 6th, 15:00-16:00

The dynamics of lexical access during language production: a swinging lexical network account

Rasha Abdel Rahman
Department of Psychology, Humboldt University Berlin

During language production we co-activate different aspects of meaning and different semantic alternatives of the intended message. I will discuss theoretical assumptions regarding the consequences of this co-activation of alternative meanings on lexical selection and propose a swinging network to account for context effects in semantics. The swinging network integrates dynamic adaptations of facilitatory and inhibitory influences at the conceptual and lexical level. I will discuss a number of behavioral and electrophysiological studies exploring the nature and time course of conceptual and lexical processing that suggest that lexical selection is competitive and that the co-activation of meaning alternatives can be shaped by adaptations to context and formations of ad-hoc semantic links beyond the classic hard-wired semantic relations such as category membership. I conclude that lexical access during language production is characterized by competition from meaning alternatives and shaped by flexible adaptations to context.

Kathryn Bock
Chair: James McQueen

Thursday June 7th, 14:30-15:30

Syntactically speaking

Kathryn Bock

Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign

Speakers build syntax when they talk. They do it in almost every utterance, at daunting rates of speed, with little outright error. What they do and the limits on what they do are the province of theory and research on language production. In contemporary work, particularly in work on the mechanisms of syntax, production is viewed as a species of cognitive and linguistic processing that guides learning and intelligent action. Ongoing debates range over questions about the mapping from features of speaker meaning to sentence structure, the coordination of words and syntax, the roles of attention and memory in word order, the links between structural representation and structural assembly, and the nature of syntactic errors. Even the cortical underpinnings for producing syntax are beginning to be explored with innovative brain imaging techniques. Significantly, the emerging picture has begun to converge with fundamental issues in language comprehension and acquisition, offering insights into what it takes to use language for communication. These insights provide the focus for this upcoming episode of language production.

4 Abstracts oral presentations Wednesday June 6th

Oral session 1: Word recognition
Chair: Iske Bakker

1.1. 10:00-10:20

Central visual word recognition requires interhemispheric communication

Lise van der Haegen, Marc Brysbaert
Ghent University

The split fovea theory states that letters of foveally presented words (i.e. within the central 3 visual degrees) are initially split and sent to the contralateral visual cortex. As such, letters presented in the left (LVF)/right (RVF) visual field are initially projected to the right (RH)/left (LH) hemisphere respectively. The present study tested the consequences of a foveal split for word reading in left- and right-handers with typical left or atypical right speech dominance. First, their speech lateralization was measured by a silent word generation task in a functional Magnetic Resonance Imaging study. All participants then named three-, four-, and six-letter words in isolation, while fixating at all possible letter positions. In addition, they were asked to read texts in silence. An eye tracking device monitored their eyes binocularly in both behavioral tasks. Results showed that left speech dominants named the words fastest while fixating at the word beginning (i.e. when most letters fall in RVF/LH), while the optimal viewing position of the right dominants was situated more towards the word end (i.e. with most letters in LVF/RH). Reading behavior also interacted with speech lateralization in the reading test: The eyes of the left-dominant group landed more at the word beginning and less at the word end relative to the initial fixation positions of the right-dominant group. These findings clearly demonstrate that interhemispheric communication is not only needed in central visual word recognition, but that reading behavior is also optimized in function of speech lateralization.

1.2. 10:20-10:40

Phonological word-object mapping is contingent upon the nature of the visual environment

Florian Hintz, Falk Huettig
Max Planck Institute for Psycholinguistics Nijmegen, International Max Planck Research School for Language Sciences Nijmegen, Donders Institute for Brain, Cognition, and Be-

havior, Radboud University Nijmegen

Five eye-tracking experiments investigated the impact of the nature of the visual environment on the likelihood of word-object mapping taking place at a phonological level of representation during language-mediated visual search. Dutch participants heard single spoken target words while looking at four objects embedded in displays of varying complexity and were asked to indicate the presence or absence of the target object. During filler trials the target objects were present, but during experimental trials they were absent and the display contained various competitor objects. For example, given the target word 'beaker', the display contained a phonological (a beaver, bever), a shape (a bobbin, klos), and a semantic (a fork, vork) competitor. When objects were embedded in semi-realistic scenes including four human-like characters (Experiment 1, 3 and 4), there were no biases in looks to phonological competitors even when the objects' contours were highlighted (Experiment 3) and an object naming task was administered right before the eye-tracking experiment (Experiment 4). In all three experiments however we observed evidence for inhibition in looks to phonological competitors, which suggests that the phonological forms of the objects had been retrieved. When objects were presented in simple four-object displays (Experiments 2 and 4) there were clear attentional biases to phonological competitors replicating earlier research (Huettig & McQueen, 2007). These findings suggest that phonological word-object mapping is contingent upon the nature of the visual environment and add to a growing body of evidence that the nature of our visual surroundings induces particular modes of processing during language-mediated visual search.

1.3. 10:40-11:00

The Tug of War during spoken word recognition in our visual worlds - Insight from a model of language mediated eye-gaze

Alastair Smith, Falk Huettig, Padraic Monaghan
International Max Planck Research School for Language Sciences, Max Planck Institute for Psycholinguistics, Donders Institute for Brain Cognition and Behaviour, Lancaster University United Kingdom

The visual world paradigm (VWP) has contributed significantly to our understanding of the information and processes involved in spoken word recognition (1). One key contribution has been to highlight the importance of non-linguistic influences during language processing, providing evidence that in addition to linguistic information, information and

processing characteristics within other modalities are critical to performance on such tasks (1, 2, 3).

Huettig & McQueen (3) demonstrated that participants fixations to objects presented within a single visual display varied systematically according to their phonological, semantic and visual relationship to a spoken target word. The authors argued that only a "three-way' hypothesis, in which language mediated visual attention is influenced by information from all three knowledge types, is capable of accounting for the observed behaviour. To date computational models of the VWP have effectively exploited the rich behavioural measures it offers to tease apart theoretical issues regarding the underlying cognitive processing. However such models have focused largely on linguistic aspects of the task (2, 4, 5) and have therefore been unable to offer explanation for the growing body of experimental evidence emphasising the influence of non-linguistic information on spoken word recognition.

To investigate multimodal information interaction and its link to eye gaze we explored whether simulations of behaviour could emerge naturally from an emergent, connectionist implementation of the 'three-way' hypothesis. We demonstrate that a model, based on the Hub-Spoke models of semantic processing (6), which integrates visual, phonological and functional information within a central resource, is able to capture the intricate time course dynamics of eye fixation behaviour reported in Huettig & McQueen (3).

The model therefore offers a connection between language processing and the distribution of eye gaze. It demonstrates how multimodal word level effects reported within the VWP literature can be driven by statistical properties of the different modalities. This suggests that such language mediated visual attention phenomena emerges largely due to the statistics of the problem domain and does not require additional domain specific processing constraints.

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1.4. 11:00-11:20

Object shape representations in the contents of predictions for upcoming words

Joost Rommers, Antje S. Meyer, Peter Praamstra, Falk Huettig
Max Planck Institute for Psycholinguistics, Radboud University Nijmegen, UMC St Radboud Nijmegen

Listeners and readers can predict upcoming words in sentences. However, not much is known about the contents of predictions: what exactly is pre-activated when anticipating upcoming words? At the level of meaning, some studies have pointed to functional semantic features, which are not physically given (Altmann & Kamide, 1999; Federmeier & Kutas, 1999). Another type of semantic representation are perceptual features, such as object shape representations. While there is evidence for activation of object shape representations in language processing, it is unknown whether this type of information can be pre-activated.

We tested this in an eye-tracking experiment. Participants listened to sentences such as 'In 1969 Neil Armstrong was the first man to set foot on the moon' containing a critical word ('moon'), while viewing a display containing an object with a shape similar to the predictable word's referent (e.g., a tomato). Before they heard the critical word, participants already directed more overt attention to shape-related objects than to unrelated objects. This suggests that object shape representations can form part of the contents of predictions.

In an experiment using event-related potentials (ERPs), we examined whether the presence of objects in the visual environment is necessary for object shape prediction. Participants listened to the same sentences, but no objects were presented. Instead, the critical word (e.g., 'moon') was replaced by a word with a referent with a similar shape (e.g., 'tomato') or an unrelated word (e.g., 'rice'). The amplitude of the N400 component, a sensitive index of semantic processing, was smaller when the anomalous word's referent had a shape similar to the referent of the expected (but not presented) word than when there was no shape similarity. This suggests that the presence of objects in the visual environment is not necessary for object shape prediction. Overall, the results shed light on the contents of predictions for upcoming words.

References:

Altmann, G.T.M. & Kamide, Y. (1999). Incremental interpretation at verbs: Restricting the domain of subsequent reference. *Cognition, 73*, 247-264. Federmeier, K.D. & Kutas, M. (1999). A rose by any other name: Long-term memory structure and sentence processing. *Journal of Memory and Language, 41*, 469-495.

Oral session 2: Syntax and morphology
Chair: Vitória Piai

2.1. 11:40-12:00

Object animacy and transitivity in sentence processing

Anna Czypionka, Katharina Spalek, Isabell Wartenburger, Manfred Krifka
Humboldt-Universität zu Berlin (AC,KS,MK), Universität Potsdam (IW), ZAS Zentrum für allgemeine Sprachforschung Berlin (AC,MK), Berlin School of Mind and Brain (all)

German verbs assigning lexical dative case to their direct objects are 'less transitive' than the standard accusative-assigning verbs [1] . The relationship between their arguments does not fit the thematic roles 'agent' and 'patient', being less hierarchical than these imply [2]. Does this difference interact with the use of animacy hierarchies in parsing? Compared to 'standard transitive' sentences with animate agents and inanimate patients, sentences with two animate arguments cause processing difficulties in the absence of morphosyntactic cues about 'who did what to whom' [3,4,5].

We were interested in how the degree of transitivity and animacy hierarchies affect sentence processing. We present reading time, eye movement and EEG studies, comparing object animacy effects in verb-final embedded sentences with either prototypically transitive acc.-assigning or non-prototypically transitive dat.-assigning verbs. Arguments are bare plural NPs without overt morphological case marking. Thus, readers have to rely on word order and semantic / lexical information in parsing.

Object animacy lengthens self-paced reading times on the postverbal word (*und*) in condition 1, but not in condition 2. Eye movement measures show that first pass reading times on the preverbal adverb (*begeistert*) are lengthened after animate objects, again only in condition 1. This suggests that the interplay between the two types of information starts already during preview processing in natural reading.

EEG measurements show more negative-going waveforms from approximately 400-600 ms on the critical verb in 1(a) compared to 1(b), with no object animacy effects in condition 2. All reported effects and interactions are statistically significant.

We conclude that the use of animacy hierarchies in sentence processing interacts with verbal case marking. This interaction between case assignment and argument animacy causes significant behavioural and physiological effects, even when case marking is not morphologically overt.

Condition 1a/b: accusative verb with (a) inanimate or (b) animate object NP

Condition 2 a/b: dative verb with (a) inanimate or (b)animate object NP

Peter sagt, dass Studentinnen *(a)Vorlesungen / (b)Professoren* begeistert *(1)loben / (2)applaudieren*, und Ida sagt das auch.

Peter says that students-fem,pl(nom) lectures-pl(inanim,acc=dat) / professors-pl(anim,acc=dat) *enthusiastically* praise/applaud *and Ida says that too.*

'Peter says that students enthusiastically *(1) praise / (2) applaud (a)lectures / (b)professors*, and Ida says so, too.'

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2.2. 12:00-12:20

Conceptual and grammatical factors in the production of subject-verb agreement

Alma Veenstra, Antje S. Meyer, Kathryn Bock, Daniel J. Acheson

Max Planck Institute for Psycholinguistics, Max Planck Institute for Psycholinguistics, Beckman Institute University of Illinois, Max Planck Institute for Psycholinguistics

Agreement processes can be disrupted by both grammatical and conceptual factors. Nouns in the same phrase can be semantically more or less integrated (e.g., the ketchup or the mustard, loosely integrated, versus the bracelet made of silver, tightly integrated). Studies looking at the effects of semantic integration on subject-verb agreement show conflicting results: Some found that strong integration hinders correct agreement, because of interference from phrases that are simultaneously active (Solomon & Pearlmutter, 2004). Others found that integration facilitates agreement, because integrated preambles are conceived of as singular and singular agreement is easier than plural agreement (Brehm & Bock, submitted).

Using two paradigms, we investigated the effects of semantic integration and local noun number in Dutch. Experiment 1 used a spoken preamble completion task (Bock & Miller, 1991); Experiment 2 used a forced-choice task (Staub, 2009). Both experiments showed an effect of integration: for unintegrated sentences, accuracy was lower and response times

were longer than for integrated sentences. This was confirmed by Experiment 3, which combined both paradigms.
In addition to the effect of semantic integration, we also found the classic attraction effect: plural local nouns yielded more agreement errors and longer response times than singular local nouns. Interestingly, the integration effect did not interact with the attraction effect. Thus, the processes have independent influences on agreement production.
Keywords: subject-verb agreement, language production, grammatical number, conceptual number, semantic integration

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2.3. 12:20-12:40

Morphological parsing is affected by syntactic constraints

Paolo Zandomeneghi, Chizuru Deguchi, Francesco Vespignani
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We investigated the processing of determiner-noun grammatical gender agreement during sentence reading in Italian on words in which grammatical gender is unambiguously expressed by a productive and long morpheme (feminine: -ezza, -anza; masculine: -mento, -ismo). A previous ERPs study on determiner-noun gender violation in italian, with no control on inflectional/derivational gender expression, reported a LAN+P600 pattern (Molinaro et al., 2008). We hypothize that, if lexical access occurs trough morphological parsing, these long and salient suffixes may lead to earlier effects than inflections, possibly even at visual sensory level (Dikker et al. 2011).
Experimental sentences included a target noun, which was preceded by a determiner whose grammatical gender did (correct) or did not (violation) correspond with the target.

a. Il direttore ha garantito la *riservatezza* dei dati raccolti.
The Director assured the[+F] confidentiality[+F] *of data collected.*

The Director assured the confidentiality of collected data.
b. *Il direttore ha garantito il *riservatezza* dei dati raccolti.
**The Director assured the[+M]* confidentiality[+F] *of data collected.*
**The Director assured the confidentiality of collected data.*

Electroencephalogram (EEG) was recorded while participants (adult Italian native speakers) read sentences presented word by word on the computer screen.
The Event-Related Potentials (ERPs) elicited by violated nouns showed a typical P600 at parietal sites, but not LAN. Interestingly, ERP amplitude was more negative for correct than for violated nouns at central sites between 250-300 ms after stimulus onset. This effect can be interpreted in terms of an N280, a component specific to morphological processing (Morris et al., 2007).
These results show that ERPs effects for gender agreement violations on morphological complex words emerge earlier than LAN. Based on Morris et al. (2007), we may assume that the incongruency between gender-marking morphemes and syntactic constraints (i.e. gender agreement) can influences the effectiveness of morphological parsing before lexical access completition.

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2.4. 12:40-13:00

Getting real about Semantic Illusions: Rethinking the functional role of the P600 in language comprehension

Harm Brouwer, Hartmut Fitz, John Hoeks
University of Groningen/BCN Neuro-Imaging Center, Max Planck Institute for Psycholinguistics, University of Groningen/BCN Neuro-Imaging Center

In traditional theories of language comprehension, syntactic and semantic processing are inextricably linked. This assumption has been challenged by the 'Semantic Illusion

Effect' found in studies using Event Related brain Potentials. Semantically anomalous sentences did not produce the expected increase in N400 amplitude but rather one in P600 amplitude. To explain these findings, complex models have been devised in which an independent semantic processing stream can arrive at a sentence interpretation that may differ from the interpretation prescribed by the syntactic structure of the sentence. We review five such multi-stream models and argue that they do not account for the full range of relevant results because they assume that the amplitude of the N400 indexes some form of semantic integration. Based on recent evidence we argue that N400 amplitude might reflect the retrieval of lexical information from memory. On this view, the absence of an N400-effect in Semantic Illusion sentences can be explained in terms of priming. Furthermore, we suggest that semantic integration, which has previously been linked to the N400 component, might be reflected in the P600 instead. When combined, these functional interpretations result in a single-stream account of language processing that can explain all of the Semantic Illusion data.

Oral session 3: Bilingualism
Chair: Mirjam Ernestus

3.1. 16:20-16:40

Predicting the predictable: Lexical-semantic processing strategies in adult L1/L2 speakers

Dominik Freunberger, Dietmar Roehm
Department of Linguistics, University of Salzburg, Austria

Since second language (L2) processing has been investigated with Event-Related Potentials (ERPs), there is an ongoing debate whether native speakers and L2 learners have access to the similar processing capacities and therefore should show comparable ERP responses to linguistic stimuli. Regarding semantic processing, it has been shown that age of acquisition (AoA) has little to no impact upon the observed ERP patterns of L2 learners; thus, even late learners show a qualitatively similar pattern (N400) as native speakers (e.g. [1,2]). Whereas most discussions about lexical-semantic N400 effects are based on the 'N400 congruity effect' (difference wave between congruous and incongruous words), only few studies considered the possibility that the N400 might not be a monolithic effect, but could involve *qualitatively* different processes (e.g. [3]). For example, Roehm et al. [4] found a P300 instead of an N400 for highly predictable words in a sentential context involving antinomies (e.g. The opposite of *black* is...).

In this experiment we wanted to investigate whether a prediction-based processing strategy is observable in high cloze-probability sentences for L1 English speakers and whether such a strategy is restricted to L1 speakers or is also accessible to speakers with English as L2. 13 native English speakers and 13 advanced German learners of L2-English (mean AoA = 9.9 yrs, mean years of learning = 12.7) read sentences where the sentence-final word either was semantically congruent or incongruent with the previous context (The tree was too high to *climb /*laugh*). In all sentences (20 per condition), the prior context enabled a strong prediction about the upcoming last word. Behavioral measures (accuracy, RTs) showed no differences between both groups.
As in previous studies, semantically deviant structures elicited similar N400s for both groups (L1 & L2) suggesting similar processes for L1 and L2 speakers. However, only native speakers showed a positivity in the N400 time window for semantically congruent sentences (similar to the P300 for predictable antonyms in [4]) thereby indicating a prediction-based parsing strategy. As the early positivity was absent in the L2 group, we conclude that L2 learners - even with an advanced proficiency level - do not use to the same processing strategies as native speakers.

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3.2. 16:40-17:00

The influence of an absent language on the recognition of interlingual homographs and cognates

Ihor Biloushchenko, Dominiek Sandra
University of Antwerp

The representation of vocabularies of different languages in the brain raises an important question in cognitive science: to what extent are language users able to suppress words from the irrelevant language? Most experiments in the study of visual word recognition show that a lexical representations in a non-target language that match the bottom-up input are automatically activated (e.g., reading the English word room also activates the

Dutch word corresponding to this letter string). Evidence for such language-independent access was even found in a go/no task, which logically requires that only one language be actively monitored (Dijkstra, Timmermans & Schriefers, 2000).
Despite the overwhelming evidence favoring language-independent lexical access, the experiments still leave room for doubt. Indeed, it is striking that inhitibory effects for interlingual homographs and facilitation effects for interlingual cognates are only obtained when the non-target language in which these words occur is also strongly represented in the experiment (e.g., many Dutch words were included in the above example of room). This raises the question whether these effects might depend on the composition of the stimulus list, i.e. only occur when the non-target language of the homographs and cognates is strongly represented in the experiment.
In order to address this question we decided to use interlingual homographs and cognates whose non-target reading occurs in a language that does not appear in the stimulus list (absent language). We designed two experiments and opted for a go/no go task in order to create optimal conditions for a strong focus on the target language.
In Experiment 1 we tested the effect of an absent language by using English/Dutch interlingual homographs. In one version all 'no go' items were words from Dutch, the language of the interlingual items' non-target reading (to replicate the standard effect). In the other version the 'no go' items were all French words, i.e., Dutch was the absent language. In Experiment 2 we tested the effect of an absent language by using two sets of interlingual cognates: English/Dutch cognates and English/French cognates. In one version no French words were included, such that the standard effect was tested with the set of English/Dutch cognates and the effect of an absent language with the set of English/French cognates. In the other version no Dutch items were included, such that the English/Dutch items were used to test the effect of an absent language.
The results show that participants were able to suppress the influence of the non-target language on homograph and cognate recognition only to a limited degree. Even though the inhibition and facilitation effects were smaller in the context of an absent language, the effects remained significant. This is strong evidence in favour of a language-independent lexical access process in visual word recognition.

3.3. 17:00-17:20

Local and global control in bilingual language production

Eva Van Assche, Wouter Duyck, and Tamar H. Gollan
Ghent University, University of California

Research on bilingual language processing has shown that information about words from both languages becomes activated even when the task requires processing in one language. It is still unclear how bilinguals control this activation in order to eventually achieve language selective production, without intrusions from the unintended language. The current study was designed to obtain more insight into the possible mechanisms of local (i.e., control on a restricted set of lexical representations) and global control (i.e., the activation or inhibition of all elements in one language) in bilingual language production by manipulating language testing order and repetition of phoneme categories in a fluency task, comparing their effects across different bilingual populations. A group a late Dutch-English (Experiment 1) and early Chinese-English bilinguals (Experiment 2) produced members of phoneme categories in one language and then members of either (a) the same categories (e.g., in Experiment 1 Dutch-English bilinguals produced words that begin with F in Dutch and also in English), or (b) different categories, in their other language (e.g., in Experiment 1 Dutch-English bilinguals produced words that begin with B only when tested in Dutch and words that begin with M only when tested in English). In both bilingual groups, prior production of exemplars from the same categories in the non-dominant language reduced dominant language fluency, but not vice versa. Without repetition of categories, Dutch-English bilinguals exhibited no testing order effects, whereas Chinese-English bilinguals exhibited reduced fluency in the dominant after non-dominant language production, but not vice versa. The robust and asymmetric effects of category repetition across languages seem to confirm prior proposals of an inhibitory control mechanism for managing between-language interference in bilingual language production. In addition, the testing order effects without repetition present in Chinese-English bilinguals demonstrate that these bilinguals control a language shift with more long-lasting language-general consequences, supporting proposals of global, whole-language inhibition for some types of bilinguals.

Oral session 4: Disorders
Chair: Merel van Goch

4.1. 17:40-18:00

A Hebb learning account of language impairment in dyslexia

Louisa Bogaerts, Arnaud Szmalec, Wibke Hachmann, Mike Page, Wouter Duyck
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Hebb repetition learning, i.e. the improved recall for repeating sequences of items in a short-term serial recall task, is assumed to be a laboratory analogue of lexical learning (Page & Norris, 2009; Szmalec, Duyck, Vandierendonck, Barbera Mata, & Page, 2009). Recent findings demonstrate that dyslexic individuals show a reduced Hebb repetition effect (Szmalec, Loncke, Page, & Duyck, 2011). This raises the question whether the acquisition of novel lexical representations is also impaired in dyslexia. We addressed this question in an experiment in which a sample of participants with dyslexia and a matched control group learnt novel wordforms (pseudowords) based on a Hebb learning protocol. The results showed slower Hebb learning and weaker consolidation of the novel words in the dyslexic group. Most interestingly, 1 month later, the novel wordforms were clearly lexicalized in the control group, while no trace of lexicalization was found in the participants with dyslexia. These findings are framed within a Hebb learning account which proposes that dyslexia, and its many associated dysfunctions, reflects an impairment in the representation of serial-order information that affects language learning and processing.

4.2. 18:00-18:20

An Experimental Study on the Influence of Congenital Amusia on Speech Perception

Jasmin Pfeifer, Silke Hamann, Mats Exter, Marion Krause-Burmester
Heinrich-Heine-Universität Düsseldorf

Congenital Amusia is a neuro-developmental disorder that has a negative influence on pitch perception (Peretz et al. 2002, Foxton et al. 2004, Stewart et al. 2008). It is not caused by insufficient exposure to music, a hearing deficiency, brain damage or intellectual impairment (e.g., Ayotte et al. 2002).
Congenital amusics face impairments in the musical domain and their symptoms range from an inability to detect incorrect notes to music sounding like 'banging' to them (Stewart 2008: 127). What makes this condition so particularly interesting is that there is an ongoing debate whether language is affected (cf. Patel et al. 2008, Liu et al. 2010) or not (cf. Ayotte et al. 2002, Hutchins et al. 2010). It has long been argued that congenital amusia is domain-specific to music and does not affect language (e.g. Peretz et al. 2002). However, growing evidence suggests that this view has to be reconsidered (Patel et al. 2008, Liu et al. 2010). Contrasting findings and different hypotheses of what the underlying cause of congenital amusia might be - a fine-grained pitch processing deficit

(Ayotte et al. 2010) or a memory deficit for non-verbal sequences (Tillmann et al. 2009)-warrant further investigation. The most fundamental issue that needs to be investigated is whether and how speech perception is affected by congenital amusia. If speech perception is affected, then it is also important to investigate which acoustic or linguistic factors may influence amusics' speech perception.

The present pilot study examined the discrimination of linguistic pitch and two types of tonal analogs (sine tones and pulses) by amusics. We tested eight German amusics (diagnosed with the MBEA: Ayotte et al. 2002) and 32 matched controls in a same-different discrimination task. It was tested whether the amusic group was at a disadvantage when linguistic material was removed in the sine tones and pulses. In addition, we looked at the influence of stimulus duration and continuity of the pitch. The phonemic material and the size of final pitch change (in up to 7 semitone steps) were also varied.

First results show that both groups performed worst for sine stimuli compared to voice stimuli and pulses, while non-amusics performed best for pulse stimuli, amusics showed an advantage in the linguistic stimuli. However, amusics performed worse over all conditions than non-amusics, even for stimuli pairs that differed in seven semitones. These results show that congenital amusia also affects speech perception.

5 Abstracts oral presentations Thursday June 7th

Oral session 5: Learning, memory and attention
Chair: Iske Bakker

5.1. 9:30-9:50

Does the processing of linguistic input depend on what is learnt about it?

Erin Hawkins
Royal Holloway, University of London

The problem of word learning requires distinguishing a novel form within the lexicon, and associating this novel form with a meaning. Despite continued word learning throughout adulthood, relatively little is known about how this initially meaningless input achieves a meaningful processing status in a developed system. A recent study observed that event-related potentials (ERPs) evoked by novel auditory pseudowords converged with known-word responses within fourteen minutes of exposure in a novel oddball paradigm (Shtyrov, Nikulin and PulvermÜller, 2010). This rapid, passive perceptual word form learning suggests adults possess the mechanisms to quickly process phonotactically legal pseudowords in a similar way to known words. Investigations of learning novel written word meanings from sentential contexts have further observed the evoked neural responses of novel written words rapidly converging with those of known words (Borovsky, Kutas, & Elman, 2010; Mestres-MissÉ, Rodriguez-Fornells, & MÜnte, 2007). However, the specific question remains of how the neural mechanisms supporting perceptual word form learning differ from those involved when learning a novel form-referent association. The experiment described in this talk thus aimed to establish how auditory word forms that come to be associated with a visual referent differ in their neural processing from those that do not, and how these two types of representations compare with that of known words within the adult system. In a paradigm where participants learnt form-referent associations, and forms without consistent associations, ERPs were compared to establish how novel words came to be processed based on what was learnt about them. Discussion of the results will consider how the information available during adult word learning affects the eventual processing status of linguistic input. The talk will lastly address implications for how we can characterise this status based on the types of processing different word learning tasks require, and how this impacts our ability to learn.

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Mestres-MissÉ, A., Rodriguez-Fornells, A., & MÜnte, T.F. (2007). Watching the Brain during Meaning Acquisition. *Cerebral Cortex, 17*, 1858-1866.

Shtyrov, Y., Nikulin, V. V., & PulvermÜller, F. (2010). Rapid cortical plasticity underlying novel word learning. *Journal of Neuroscience, 30*(50), 16864-7.

5.2. 9:50-10:10

Does working memory capacity affect individual semantic processing differences?

Juliane Domke
Humboldt University Berlin

Using event-related potentials (ERPs) we examined whether Working Memory Capacity (WMC) might indicate individual processing differences when processing an unexpected/ anomalous word within a single sentence context. Recent research has suggested that processing of an unexpected/anomalous word is not affected by differences in WMC per se. However, there seem to be WMC dependent differences, of the way how this unexpected/anomalous information is dealt with [2]. We conducted an ERP experiment on processing a semantic anomalous/unexpected word (see Ex.1). WMC (reading and operation span tests according to [1]) and EEG of 23 native speakers of German were recorded. ERPs were time-locked at the critical noun-phrase (direct object), see Ex. 1 below. Visual inspection of the ERP data reveals an interesting distinction of processing pattern, in that one group (n=13) shows a negative going ERP wave between 400 and 600 ms post stimulus. The other group (n=10) shows a more complex processing pattern: a similar negativity between 400 and 600 ms post stimulus which is followed by a late positive going ERP-wave within a time window between 600 and 800 ms. Statistical analysis was obtained for these two time windows. WMC was treated as continuous variable whereas group was treated as factor according to visual inspection. Significant interactions between group and condition were only obtained in the late time window. Results further show clear interactions between group and WMC as well as multiple interactions between group, WMC and scalp distribution for the late time window. The finding of the early negativity in both groups goes in line with former results that suggest that processes of semantic integration difficulties are generated automatically. They seem to operate quite independent from additional

cognitive resources such as WMC. The finding of an additional late positivity in only one group of the participants and the strong interactions with WMC indicate its influence in that readers with lower WMC seem to further generate some kind of monitoring or re-analysing processes due to their higher WMC load.

Ex: Der Autor schreibt einen Roman/*Stuhl und erhält einen Preis.
The author writes a novel/*chair and receives an award.

References:

Lewandowsky, S. et al., (2010). A working memory test battery for MatLab. *Behavior Research Methods, 42*, 571-585.

Otten, M. & van Berkum, J., (2009). Does working memory capacity affect the ability to predict upcoming words in discourse? *Brain Research, 1291*, 92-101.

5.3. 10:10-10:30

Broadening the role of the verbal self-monitor in speech production: evidence from the taboo picture-word interference paradigm and event-related potentials

Elisah Dhooge, Wouter De Baene, Els Severens, Rob Hartsuiker
Department of Experimental Psychology, Ghent University

Within the literature on speech production, verbal self-monitoring is seen as a mechanism that allows speakers to catch errors in overt and covert speech. However, it does not catch all errors equally but exhibits a monitoring bias. For example, taboo errors are easier to catch than neutral errors. Recently, it has been suggested that the role of the monitor is much broader and can be seen as a conflict detection device adjusting its behavior to the context. This has been investigated by means of the picture-word interference (PWI) task, where participants name a picture while ignoring a superimposed distractor. In essence, a conflict situation is created and speakers have to differentiate between activity stemming from the picture and from the distractor. In one experiment, Dhooge and Hartsuiker (2011, Experiment 2) presented a PWI task with neutral and taboo distractors. If monitoring is involved, conflict should be easier to detect and resolve on taboo trials and as such taboo distractors should interfere less with picture naming. Contrary to this prediction, increased naming latencies were found with taboo compared to neutral distractors. To explain this

result, the authors assumed a second monitoring process. That is, to avoid making an embarrassing error, the picture's name would be monitored as well and this monitoring process would be more stringent on taboo trials. The goal of this study was to find evidence for monitoring in the taboo PWI paradigm. Specifically, event-related potentials were measured while participants performed a taboo PWI task. Two ERP components were expected to be related to the monitoring activity: the N200 indicating conflict detection and the LPP indicating increased resource allocation to the monitoring process. In line with previous findings, naming latencies were longer with taboo distractors. Regarding the ERPs, an N200 was found with less negative amplitudes for taboo trials, suggesting easier conflict detection with taboo distractors. Also, an increased LPP on posterior electrodes reflected increased monitoring activity on taboo trials. In sum, the results support the need for a broader view on monitoring.

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Dhooge, E. , & Hartsuiker, R.J. (2011) How do speakers resist distraction? Evidence from a taboo picture-word interference task. *Psychological Science, 22*, 855-859.

5.4. 10:30-10:50

Oscillatory activity in Broca's area during interference in overt picture naming: an MEG study

Vitória Piai, Ardi Roelofs, Ole Jensen, Jan-Mathijs Schoffelen, and Mathilde Bonnefond
Radboud University Nijmegen, Donders Institute

In order to investigate selection processes in spoken word production, we conducted an MEG study employing the picture-word interference task, in which participants name pictures while ignoring distractor words superimposed onto the pictures. The distractors used were either the name of the picture (congruent condition, pictured leg, distractor 'leg'), from the same semantic category (related condition, pictured leg, distractor 'arm'), or unrelated to the picture (unrelated condition, pictured leg, distractor 'desk'). Response times (RTs), event-related fields (ERFs), and time-frequency representations (TFRs) were analysed for the semantic effect (related vs. unrelated conditions) and for the Stroop-like effect (related vs. congruent conditions).
RTs showed the expected semantic interference, i.e., longer RTs for the related relative to the unrelated condition, and Stroop-like interference, i.e., longer RTs for the related relative to the congruent condition. So the ordering of the RTs was related > unrelated >

congruent. In line with previous ERP findings, the ERFs showed a peak around 400 ms, with the largest amplitude in the unrelated condition, followed by the related, and then the congruent condition, which differs from the condition ordering of the RTs. Both the semantic interference and Stroop-like effects had a left-temporal scalp topography. The TFRs showed power increase in the theta band (4-8 Hz) between 400 and 500 ms, followed by a power increase in the low-alpha band (8-10 Hz) until 650 ms. In the phase-locking factor of the oscillations, we observed that the theta effect could be characterised by phase locking, whereas the low-alpha effect could not. Moreover, the ordering of the relative power increase was related ¿ unrelated ¿ congruent, in line with the condition ordering of the RTs. Finally, the low-alpha power increase was localised to Broca's area, an area known to be involved in the top-down control of processes for selection of linguistic and non-linguistic representations.
We argue that the effects in the ERFs reflect the semantic priming of the distractor word by the picture, giving rise to semantic interference. The more semantically distant the distractor is from the picture, the larger the ERF amplitude. The oscillations, localised to Broca's area, reflect top-down controlled selection of linguistic information, which is needed in picture-word interference and will reflect the condition ordering of RTs. We conclude that, by combining the analyses of phase-locked and non-phase locked brain activity, we tap into two different mechanisms involved in performance in the picture-word interference paradigm.

Oral session 6: Language and thought
Chair: Vitória Piai

6.1. 11:10-11:30

Conceptual Event Units and Grammatical Encoding

Rebecca Defina (1,2), Asifa Majid (1,3)
(1) Max Planck Institute for Psycholinguistics, (2) International Max Planck Research School for Language Sciences, (3) Donders Institute for Brain Cognition and Behaviour

People automatically chunk ongoing dynamic events into discrete conceptual event units (Zacks et al., 2001). This paper investigates the possibility that linguistic structure may have an influence on how this segmentation is performed. Specifically, it tests the claim that describing an event with a serial verb construction will influence a speaker's conceptual event structure (Durie, 1997). The grammar of Avatime (a Kwa language spoken in Ghana) requires its speakers to describe some, but not all, placement events using a serial

verb construction which also encodes the preceding taking event. We tested Avatime and English speakers' recognition memory for putting and taking events. Avatime speakers were more likely to falsely recognize putting and taking events from episodes associated with take-put serial verb constructions than from other episodes associated with different constructions. English speakers showed no difference in false recognitions between episode types. This demonstrates that memory for episodes is related to the type of language used; and, moreover, across languages different conceptual representations are formed for the same physical episode, paralleling habitual linguistic practices.

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6.2. 11:30-11:50

I know *what* you are saying: beliefs about another's utterances affect own utterance duration

Joris Van de Cavey, Chiara Gambi, Anna C. Mackenzie, Kristen Nelissen, Martin J. Pickering

University of Ghent (first author), Univeristy of Edinburgh (all co-authors)

Do speakers represent that others are about to speak? Previous work using joint picture-naming tasks showed that naming is impaired by the belief that one's partner is concurrently naming (Gambi et al., 2011). This parallels findings in the action and perception literature. Actors use knowledge of their partner's task to represent *whether* they will respond on a given trial or not (see Wenke et al., 2011).

In addition, actors specifically represent *what* their partner is about to do. If the partner's and one's own response are incongruent, performance is impaired (e.g., Sebanz et al., 2003). We provide evidence that specific representations of others' utterances can be formed as well.

Twenty pairs of participants described transitive events, starting either with the agent (ACTIVE) or the patient (PASSIVE). Before each trial, their names appeared on the screen, followed by the words 'red', 'blue', or 'grey'. Participants started their description

with the character printed in the given colour, or remained silent if assigned to 'grey'. We varied whether their partner started with the same character (SAME), the other character (DIFFERENT) or did not describe the picture (NO). To rule out the obvious confound of overlapping speech, participants were tested in two sound-proof rooms.
Replicating previous findings, latencies were longer when participants believed their partner was producing a sentence than when they believed she was silent (β= 18ms, t= 3.11, pMCMC=.003). Importantly,utterance duration was longer when participants believed the partner produced a sentence in the opposite voice (DIFFERENT) than when they believed she produced a sentence in the same voice (SAME) or no sentence (NO; β= 18ms, t=2.91, pMCMC=.005). Neither of these effects interacted with sentence voice.
Language production is less efficient when speakers believe their partner is producing a different utterance from them. Modeling another's utterance can interfere with concurrent production of one's own utterance. We suggest this occurs because the two processes are based on common mechanisms (Pickering & Garrod, 2007). We are currently conducting a follow-up experiment. The partner prepares the utterance, but produces it only after the participant has finished speaking. We expect similar results if speakers model utterance planning rather than articulation.

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6.3. 11:50-12:10

Body-specificity in simple action sentences

Madeleine E. L. Beveridge, Martin Pickering, Daniel Casasanto, Roberto Bottini
University of Edinburgh, New School for Social Research

Embodied cognition accounts of language are supported by research demonstrating body-specificity in language comprehension. Specifically, left- and right-handed participants show body-specific activation in the pre-motor cortex when reading simple action

verbs (1). However, it is unclear what role body-specificity plays in understanding entire sentences.

In the current study, we investigate how body-specificity interacts with perspective taking in language. In Experiment 1, we used a sentence-picture matching paradigm to demonstrate body-specificity in first-person action sentences: participants read sentences describing first-person actions (e.g. I am cutting the tomato), and then viewed photographs showing that action carried out by a left or a right hand. Results showed a significant interaction between participant's dominant hand, and the hand executing the action in the photograph: right-handed participants were slower to match sentences to photographs showing right-handed actions, and left-handed participants were slower to match sentences to photographs showing left-handed actions. No interaction was observed in filler trials (when sentence and picture did not match), indicating that the effect was not simply a result of viewing left-/ right-handed images.

Experiment 2 extends this paradigm by manipulating participants' perspective (internal/ external). Brunye et al (2) showed that action sentences using third person pronoun encourage participants to adopt an external, rather than internal, perspective (i.e. they represent the action as being carried out by someone other than themselves). We are currently testing whether participants also demonstrate body-specificity when comprehending third-person action sentences. In this way, we aim to establish whether the motor simulations implicated in language processing embody the way the comprehender herself would execute an action, regardless of the linguistic perspective of the sentence; or whether the perspective of motor simulations is contingent on linguistic perspective taking. In the first case, we expect the results to show body-specificity in both first- and third-person sentences. In the second case, we expect to see body-specificity only in first-person sentences, with all participants favouring a right-handed perspective in third person sentences.

The results are discussed in terms of implications for embodied cognition, perspective taking in language, and the distinction between self and others' actions.

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6.4. 12:10-12:30

Switch Reference Antecedents: Are They on Topic?

Jeremy Hammond
MPI for Psycholinguistics, IMPRS

In this paper, I present results from experimental data on clause linkage in the Oceanic language Whitesands (ISO: TNP). Whitesands, like its sister languages of the southern Vanuatu sub-group, uses a switch reference system (called the Echo Subject (ES) (Lynch 2001:177, Crowley 2002:201)). I present a description of the system in its most canonical form for Whitesands. I then tackle the properties of antecedents for the same subject clauses using a production experiment. I address the following questions: Does the Whitesands' system support claims that switch reference systems are potentially sensitive to discourse topicality (Reesink 1983)? Furthermore, what is the preferred antecedent for Whitesands speakers in extended discourse?
The *m-* 'ES' inflection is typically used when two adjacent predicates share the same subject. The *m-* replaces the person agreement and tense operators in the second clause. In (1) the *m-* indicates co-reference of the subject of the predicate with the subject of the preceding predicate. The clause *m-l-eru* is underspecified for person and tense when taken out of context.

k-l-eni ama [m-l-eru]
3.NPST-TRIAL-say just ES-TRIAL-see
They (TRIAL) just talked and saw. [ALL01_261]

However, in the Whitesands corpus it is clear that a simple 'antecedent equals subject' rule does not always hold for same subject clauses and that a notion of discourse topic might be a potential antecedent alternative. For example, there are topic chains that use the Echo Subject for continual reference whilst skipping immediately adjacent non-topical subjects. Further, there are forms where the prefix *m-* combines previously distinct arguments into a single argument slot.
The experiment presented here is a production experiment where speakers had to extend natural discourse using video and audio stimuli. The items were of four types and these were controlled for alignment of grammatical relations and topicality. The results suggest that a highly topical entity can indeed trigger an m- prefix co-reference pattern. However, I conclude that the switch reference clauses are much more likely to be aligned with a topical referent that is also the subject of the preceding clause than in other configurations

tested.

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Reesink, Ger. 1983. Switch reference and topicality hierarchies. *Studies in Language* 7: 215-46.

Oral session 7: Phonology
Chair: Merel van Goch

7.1. 15:50-16:10

Acoustic reduction in Dutch infant-directed speech

Mybeth Lahey (1,2,3), Mirjam Ernestus (1,3)

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In spontaneous conversations, words are often pronounced with fewer segments or even fewer syllables than in careful speech. For instance, the Dutch word allemaal 'all' /Al@mal/ may be reduced to [Am@l]. In speech addressed to young children on the other hand, words and segments are generally pronounced very carefully, leading to the assumption that infant-directed speech is hyperarticulated. The present study investigates to what degree acoustic reduction occurs in infant-directed speech, compared to adult-directed conversational speech and read speech.

We carried out an acoustic study and a perception experiment focusing on utterance-medial occurrences of the Dutch words allemaal 'all' and helemaal 'completely', whose meanings infants do not yet know. We extracted 52 tokens of these words directed to 11- and 12-month-old infants, 84 tokens directed to adults from the Nijmegen Corpus of Infant- and Adult-directed Dutch, and 80 tokens of read speech from the Spoken Dutch Corpus.

We analyzed the effect of speech register on the tokens' durations controlling for speech rate and speaker's age. Our linear mixed-effect regression model revealed that the tokens in infant-directed speech were approximately as long as those in adult-directed speech, but were generally shorter than the tokens in read speech. Our acoustic analysis thus suggests that, with respect to duration, infant-directed speech is more similar to adult-directed spontaneous speech than to read speech.

In the perception study, adult subjects listened to all tokens in isolation, rated them for degree of reduction on a six-point scale, and provided a phonetic transcription of each token, using Dutch orthography. The results showed that listeners perceived at least the same degree of reduction for tokens in infant-directed as in adult-directed speech, but less reduction in read speech. The phonetic transcriptions indicated that participants based their rating scores not only on the duration of the tokens, but also on other (perceived) properties of the speech signal, including the number of consonants and vowels in the token, and the absence of segments like the first /l/ and a full vowel in the final syllable.
In conclusion, our results reveal that children are confronted with reduced pronunciation variants from early on in their lives. Previous research has shown that adults store information about different pronunciation variants in their mental lexicon. Our results suggest that these representations are likely to be acquired and stored by infants from an early stage of linguistic development, even before they know the meaning of the words.

7.2. 16:10-16:30

Co-occurrence of reduced word forms in spontaneous speech

Malte Viebahn, Mirjam Ernestus, James McQueen
Max-Planck Institute for Psycholinguistics, Radboud University

In spontaneous conversations, the way speakers produce words often deviates from dictionary pronunciations. For example, the schwa in the English word separate may be shortened or omitted resulting in the reduced form sep'rate. In Dutch, the word geweest may be pronounced as g'weest.
In the present study, we investigated whether reduced word forms are likely to co-occur in spontaneous speech. We investigated this question by measuring the duration and presence of schwas and /t/s in a total of 3,241 Dutch past participles collected from three speech registers: spontaneous speech from the Ernestus Corpus of Spontaneous Dutch (ECSD), interviews from the Corpus of Spoken Dutch (CGN), and read speech from the CGN.
We expected that the degree to which a word is reduced should be influenced by the degree to which the preceding word was reduced. This effect, may be influenced by how closely the words occur in time and how similar they are. In order to investigate if the amount of time that has passed between words has an effect on reduction, we measured the time lag between succeeding past participles. In addition, we measured the degree of phonological relatedness among succeeding words, i.e. whether the words shared the same prefix, whether they were identical words, or whether they were completely different words.

Our mixed-effect regression models suggest different effects for the two segment types. For the schwa data, we find a positive relationship between schwa durations of succeeding tokens when the tokens belong to identical words and occur closely together in time. However, we find a negative relationship when the time lag between words is large. For the /t/ data, we find a positive relationship between time lag and segment duration for identical words and a negative relationship for different words.
How do current models of lexical memory account for these results? Both exemplar-based and abstractionist approaches could explain the /t/-reduction results by assuming a simple priming mechanism through which repeated lexical access is facilitated and articulation sped up. The schwa- reduction results, however, are easier explained by an exemplar-based than an abstractionist account.

7.3. 16:30-16:50

Specificity and Generality in Speaker Adaptation

Kodi Weatherholtz
The Ohio State University

Speaker adaptation refers to the speech processing benefits that result from experience with speaker-specific pronunciations. Previous studies demonstrate that brief exposure to speech from a particular talker facilitates spoken word recognition [1] and influences the mapping of phonetic forms onto phonemic categories [2,3]. An on-going debate concerns the extent to which such adjustments are specific to (or generalize beyond) the familiarization input [2,3]. In two experiments, the current study investigates whether familiarization to a novel accent facilitates the recognition of same-accent words only (specific adaptation) or also facilitates recognition of differently-accented words (generalized adaptation).
The experimental design used a modified version of Maye et al.'s *weckud wetch* adaptation paradigm [1]. Participants performed a lexical decision task, followed by passive listening to a story read in a front vowel lowered (FVL) accent, and then performed a second lexical decision task. To create the FVL accent, a phonetician lowered all front vowels one phonemic category, but did not alter the pronunciation of back vowels; thus, *witch* was realized as [wɛtʃ] (cf. /wɪtʃ/). Lexical decision targets for Experiment 1 comprised three types of near words, all being one vowel shift from a canonical pronunciation: front vowel lowered items, back vowel lowered items, and back vowel raised items. For Experiment 2, the latter two types were replaced with front vowel raised and front vowel backed items.
Consistent with [1], results from both experiments show clear speaker adaptation: partic-

ipants endorsed significantly more FVL items (e.g., [wɛtʃ]) as words after familiarization with the speaker's FVL accent. Unlike [1], familiarization also facilitated endorsements and response times for all items with shifts in vowel height: front and back vowel raised, and back vowel lowered. The vowel *lowering* accent did not affect recognition of front vowel *backed* items. These results may differ from [1] due to the use of human rather than synthetic speech. Together, these findings indicate that the process of adapting to speaker-specific pronunciations makes available a more general, though not unconstrained, strategy for recognizing words with different novel pronunciations.

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6 Abstracts poster presentations Wednesday June 6th

Poster session 1A: Wednesday June 6th 13:30-14:15

1A.01

The Distinct Patient pragmatics of Get- and Be-passives

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In English, the same transitive event can be described via an active-voice or passive-voice sentence. Although the active is more frequent, the passive is known to serve distinct functions, for example, topicalizing the event's patient (e.g. Keenan & Dryer, 2006). At the same time, little is known about factors that promote the use of get-passives over the more frequent be-passives. While some theories suggest both types of passive are interchangeable (Chomsky, 1981), others acknowledge the two variants are associated with distinct syntactic properties (e.g. Haegeman, 1985) and they serve different semantic (e.g. Givon & Yang, 1994) and pragmatic (e.g., Carter & McCarthy, 1999) functions. More specifically, several theories propose that, by using a get-passive, the speaker puts specific emphasis on such properties of the patient as responsibility (e.g. Lakoff, 1971), purposefulness (e.g. Downing, 1996), and control (e.g. Givon & Yang, 1994). Here, we analysed how increasing the patient's accessibility, via its information status (given versus new), and putting attentional focus on the patient, via syntactic clefting, jointly affect the speaker's bias to paraphrase an active-voice sentence using one of the two passive voice constructions; 'get' and'be'.
Participants read 24 two-sentence stories, in which the second sentence always described a transitive target event in active-voice. Two factors were orthogonally manipulated: (1) The patient of the target event was either new (=¿ agent given) or given (=¿ agent new), and (2) attentional focus (via syntactic clefting) was either on the agent or patient of the target event. After reading each story, participants produced a single-sentence description of what happed in the target event. Out of all available responses, we separately analysed proportions of active-voice, be-passive, and get-passive descriptions, using binary logistic Generalized Estimating Equations. The analyses revealed that participants produced fewer active-voice descriptions when the patient in the target event was given. Moreover, we found that the two passive-voice variants were differently sensitive to the two experimental manipulations: While proportions of be-passive paraphrases increased in the Patient-given conditions, get-passives became more likely in the Patient-focused conditions. We conclude

that the two variants of the English passive may serve distinct pragmatic functions: While be-passives appear to mark given (hence, generally more accessible) patients, get-passives are more likely when the speaker wants to place attentional focus (or emphasis) on the patient's role in an event.

1A.02

Qualitative and quantitative inter-individual differences in semantic categorization

Steven Verheyen, Gert Storms
University of Leuven

When asked to indicate which items from a set of candidates belong to a particular natural language category inter-individual differences appear: Individuals disagree on the items that should be considered category members. We argue that these inter-individual differences in semantic categorization come in two kinds. Qualitative differences reflect a different organization of the candidate items with respect to the target category. Quantitative differences reflect a different propensity to endorse items as category members. In a first study this claim is supported by an analysis of categorization data with a mixture model. For several of the studied natural language categories the group of categorizers falls apart in distinct subgroups, who regard different items likely category members (i.e., qualitative differences). Within each of these subgroups categorizers differ in their propensity to provide membership responses (i.e., quantitative differences). In a second study the qualitative inter-individual differences are substantiated. The different subgroups are shown to emphasize different sets of category features when making their categorization decisions.

1A.03

Could morphological awareness give us a deeper insight into morphological priming in L2?

Claudia Helena Sanchez Gutierrez
University of Salamanca

Morphological awareness (MA) and morphological priming (MP) in L2 have traditionally been studied separately as two research areas with no overlapping matters. However,

it seems reasonable to think of both perspectives as part of a broader picture of what L2 learners know about morphemes and word formation and how they process complex words. In this context, our study aims to give a two-sided, parallel, account of how MA and MP emerge, develop and interact at the very first steps of the learning-span of Spanish L2 students. 168 students, attending to three different course-levels, took a MA test, composed of five tasks that each tapped into a very specific aspect of MA (detection of morphemes, production in and out of a sentence-context, morphological fluency and knowledge of suffix meaning). We also ran a masked priming experiment with 40 of those students. The results of the MA test showed a clear pattern of evolution through the course levels, except in the morpheme detection task. Interestingly, this lack of improvement was not due to a ceiling effect. This seems to indicate that students with a low proficiency level can already recognize some words as complex, and detect their correspondent suffixes, even though that ability is not overall extended and generalized. These data are particularly interesting when we look at the priming experiment, that shows a partial morphological facilitation. Nonnative speakers, at the initial stages of their learning-span, seem to have developed a morphological processing route and to be able to detect suffixes, as well. However, both the priming effect and the detection ability reveal to be incomplete. Those results will be discussed in the context of models of morphological processing.

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1A.04

Bilingualism and the increased attentional blink effect: Evidence that the difference between bilinguals and monolinguals generalizes to different levels of second language proficiency

Vatsala Khare, Ark Verma, Bhoomika R. Kar, Narayanan Srinivasan, Marc Brysbaert
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The Attentional Blink task involves rapid serial presentation of visual stimuli, two of which the participants have to report. The usual finding is that participants are impaired to report the second target if it appears in close temporal proximity to the first target. Previous research has shown that the effect is stronger in bilinguals than monolinguals. We investigated whether the difference between monolinguals and proficient bilinguals can be extended to bilinguals of different proficiency levels. Therefore, we replicated the paradigm in a large sample of Hindi-English bilinguals with different proficiency levels of English, as measured with a validated vocabulary test. We additionally measured the participants' intelligence with the Raven Progressive Matrices. We found that the size of the Attentional Blink effect correlates with the degree of second language proficiency and not with the degree of intelligence. This indicates that research on executive control functions can be done with bilinguals of different proficiency levels.

1A.05

Phonological precursors to literacy in the first year of kindergarten

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When children learn to read, they make use of knowledge about spoken language. Among known phonological precursors to literacy are speech decoding skill (i.e., the ability to categorize the continuous speech stream into discrete, meaningful units) and phonological awareness (i.e., the ability to consciously reflect upon and manipulate speech sounds). Additionally, the phonological richness and specificity of representations in the mental lexicon seem to play a role. Gaining access to phonemes (necessary to become phonologically aware and ultimately, to learn to read) depends on having phonologically well-specified representations of spoken words. These representations become gradually enriched so that words can still be disambiguated as the vocabulary expands. Lexical restructuring theories assume that this process extends into early childhood. However, based on results from studies with very young children, one could argue that lexical restructuring happens earlier than this.
The current study investigated the interrelations between the three previously discussed phonological precursors (i.e., speech decoding, phonological awareness, lexical specificity) in the first year of kindergarten. A cohort of 101 Dutch children (mean age = 50.4 months)

was assessed on lexical specificity, speech decoding (i.e., phoneme discrimination), phonological awareness (i.e., rhyme awareness, phoneme synthesis, phoneme identification) and basic skills (i.e., working memory capacity, rapid automatized naming, passive vocabulary). Hierarchical regression analyses indicate that, even after controlling for cognitive skills, lexical specificity indeed predicts rhyme awareness.

1A.06

Internal verbal self-monitoring: speech perception or forward models?

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Part of our language production mechanism is a monitor that controls the potential output for mistakes. This is demonstrated by our ability to correct mistakes during, or sometimes even before production (Levelt, 1989). These corrections are even made when overt speech is masked (Postma en Noordanus, 1996), or when the speech is internal (Oppenheim & Dell, 2008).
Several monitoring mechanisms have been proposed, of which we will contrast two. The Perceptual Loop Theory (Levelt, 1983, 1989) assumes a monitoring mechanism that processes internal speech similar to speech produced by others. The contrasting view assumes a forward model of language processing.
By testing several variations of the visual world paradigm we wish to differentiate between the two models of internal monitoring. If our results show similar behaviour in the processing of self-produced speech compared to speech produced by others, this is taken as evidence in favour of the perceptual loop theory. If we find different behavioural results in self-produced speech compared to speech produced by others, this is taken as evidence in favour of a forward model for speech production.
In the visual world paradigm a display with 4 words is presented. One of the words, the target, is also presented auditory (perception condition) or needs to be spoken by the participant (production condition). One of the words, the competitor, is phonologically related (phonological condition), semantically related (semantic condition) or unrelated (control condition). The two other words on the screen are unrelated to the target. In a previous experiment Huettig and Hartsuiker (2010) demonstrated similar eye-movement patterns in self-produced speech and speech produced by others. We replicate the experiment with a few variations: with delayed auditory feedback, with masking of the produced speech, with mouthing and with silent speech. Eye-movements are recorded and analysed. The results

of these experiments will give insight into under what conditions the speech is monitored internally, and what monitory strategy is most likely applied when speech is monitored internal.

1A.07

Ortographic neighbourhood size effects in bilingual word recognition: an explantion in terms of response competition

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Studies on visual word processing have shown that the processing of a word can be influenced by the number of orthographic neighbors that word has both within a language and across languages (e.g. Andrews, 1997; Heuven, Dijkstra, & Grainger, 1998). However, the role that orthographic neighbourhood size plays in visual word processing and the mechanisms underlying the observed neighbourhood effects are a topic of debate.
The present study addresses this topic by examining cross-language neighbourhood size effects for Dutch-English bilinguals in an English (L2) lexical decision task. English words and non-words with no orthographic neighbours in English and Dutch, called cross-language hermits, were contrasted with English words and non-words that either had neighbours in only English or Dutch, or in both languages. Cross-language hermits were processed slower than words with neighbours from English or from both English and Dutch, but faster than words that only had Dutch neighbours. In contrast, facilitation arose for cross-language hermit non-words compared to non-words with neighbours in English or in both languages, but inhibition compared to non-words with only neighbours in Dutch.
Simulations of word response latencies by the BIA+ model (Bilingual Interactive Activation Plus model; Dijkstra & Van Heuven, 2002), revealed facilitation rather than inhibition for cross-language hermits compared to non-hermits. Interestingly, monolingual naming latencies for these word items obtained from the English Lexicon Project replicated this pattern of facilitation for cross-language hermits, while monolingual lexicon decision latencies from the same database patterned with the results of Experiment 1, showing longer response latencies for cross-language hermits. We argue that bilingual neighbourhood effects in the present study reflect response competition rather than lexical competition.

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1A.08

Similarity-based processing of adjective pairs

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In English, there are constraints on how prenominal sequences of descriptive adjectives are ordered (e.g., *a large brown desk* vs. *a brown large desk*). Their order usually follows a linear precedence relation between their semantic classes, i.e., VALUE < SIZE < DIMENSION < PHYSICAL PROPERTY < COLOR (Kemmerer et al., 2009). In two self-paced reading experiments, Kennison (2010) showed that participants' reading times increased at the second adjective in adjective pairs that violated class precedence constraints. However, class-based accounts cannot explain why exceptions to the class precedence constraints seem to cluster around semantically similar adjectives. Take for instance the phrases *the big bad wolf, the big friendly giant and tall cool woman*, of which the preferred orders all violate the VALUE < SIZE < DIMENSION.

Using both offline and online tasks, we show that adjective order preferences are sensitive to similarity-based effects. In a two-alternative forced-choice task, participants had to choose between two adjective orders. The probability of choosing a specific adjective order was not only constrained by the class precedence and the adjective bigram frequencies, but also by the *distribution-neighborhood overlap*, i.e. the number of adjective types that are in the intersection between the similarity-smoothed distribution of adjectives following the first adjective and the set of nearest neighbors of the second adjective. This finding extended to a priming experiment, in which stronger overlap between the word distribution conditioned on the prime adjective and the neighborhood of the target adjective increased lexical decision times on the target. We interpret this finding as showing that greater overlap results in post-lexical processing, because the two adjectives are no longer processed separately but as a syntactic sequence. The results of both these experiments provide strong evidence for similarity-based processing at the syntactic level.

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Poster session 1B: Wednesday June 6th 14:15-15:00

1B.01

Bilingual language comprehension during sentence reading

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As our society shifts from a monolingual to a mostly bilingual one, there is a pressing need for psycholinguistics to develop bilingual language theories. The huge amount of monolingual research on eye movements has been essential in developing theories regarding visual language comprehension and sentence processing. Until now, only a few studies examined eye movements in bilinguals and none of those was set up with the intention of investigating bilingual sentence processing.

This project means to directly and indirectly bridge this theoretical gap by gathering a large amount of eye movement data in different groups of bilingual participants (Dutch-English and Dutch-French bilinguals with L2 proficiency and acquisition age varied) and a group of monolingual English participants. This project is of high theoretical importance and will ensure a better understanding of bilingual language comprehension. On top of that this language corpus will be crucial in enabling future research on bilingualism.

Until now, we have used the eye tracking method to obtain reading measures in 1 population: Dutch-English bilinguals (with Dutch as L1). This population consisted participants with an early acquisition and a high proficiency of L2, a late acquisition and a high proficiency of L2, who work in an L2 environment and a late acquisition and an intermediate proficiency of L2. Each of the participant groups consisted of 10 participants. These participants were asked to read an entire novel (The mysterious case at Styles by Agatha Christie) half in Dutch, half in English.

First we looked at differences in basic parameters like fixation duration, regression rate, saccadic accuracy and reading speed between these participants and the participants tested in the monolingual literature. After that, important markers of lexical access, like frequency and cognate effects, were assessed for this bilingual participant group.

1B.02

General or specific learning: perceptual learning as a form of statistical learning?

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In everyday life, human listeners have to adapt to listening conditions continuously. They are capable of quickly adjusting to changes in e.g. speaker and rate. Previous research has shown that listeners are even able to adapt to severely degraded speech such as noise-vocoded (e.g. Davis et al., 2005), time compressed (e.g. Golomb et al., 2007) or novel accented (Adank & Janse, 2010) speech and that learning is maintained over time. Perceptual learning is an ability preserved with increasing age (Golomb et al., 2007). Importantly, (age-related) decreases in hearing sensitivity do not interfere with perceptual adaptation to novel listening conditions (Gordon-Salant et al., 2010). However, individuals show great variation in pattern and amount of perceptual learning (Eisner et al., 2010) but it is unclear what underlies these differences.
When learners adapt to listening conditions, do they rely on general statistical learning mechanisms or do they tune into specific cues that the speech condition provides? If a general learning mechanism underlies the process of perceptual learning, statistical learning in any modality might be (strongly) predictive of perceptual adaptation to a challenging listening condition. Statistical learning is defined as a domain-independent learning mechanism in which participants implicitly detect complex statistical regularities in the environment (Saffran, 2003; Vuong et al., 2011, Kaufman et al., 2010). Generally, it is measured by the efficiency to learn an artificial grammar in a certain modality (e.g. touch, vision, audition). Alternatively, if perceptual adaptation in speech processing is less about the detection of statistical patterns or rules, but more about shifting attention to specific stimulus cues, then correlations between statistical learning in a visual or tactile learning task and perceptual adaptation to a challenging listening condition should not be high.
In the present study, older participants (aged over 60 years) were asked to perform a visual artificial grammar learning task involving adjacent dependencies. In addition, they were presented with an auditory sentence recognition task with noise-vocoded sentence material. We will investigate whether and how strongly statistical learning in the visual domain is related to individual adaptation to noise-vocoded speech. Results in both learning tasks will also be related to performance on a battery of cognitive skills. Preliminary findings

will be discussed.

1B.03

Progressive use of metrical cues

Sandrien van Ommen, Rene Kager
UiL OTS, Utrecht University

Progressive use of metrical cues Within the framework of a larger project on metrical segmentation we will present the first results of a cross-linguistic experiment with speakers of Turkish and speakers of Dutch. The central hypothesis is that segmentation is guided by patterns of metrically well-formed words in the native language. Previous studies have shown that listeners interpret stressed or strong (non-reduced) syllables as potential beginnings of words in a.o. English (Cutler & Norris, 1988; McQueen, Norris, & Cutler, 1994; Norris, McQueen, & Cutler, 1995), and Dutch (QuenÉ & Koster, 1998; Vroomen & de Gelder, 1995). This is interpreted as evidence for the Metrical Segmentation Hypothesis, which predicts that listeners have and use a parsing ability based on edge-aligned stress. However, most empirical evidence supporting this hypothesis comes from languages with (statistically most frequent) word-initial stress. Evidence for a facilitatory effect of right-edge aligned stress is sparse (although see (Kabak, Maniwa, & Kazanina, 2010)), which leaves the question of how languagespecific or universal metrical segmentation is, open. Furthermore, it only provides evidence for the use of regressive cues, i.e. when a speaker hears a stressed syllable they infer a word boundary prior to it. The question whether speakers can use stress to anticipate a word boundary has therefore not been answered. The current non-word spotting experiment is designed to address both of these issues by means of a cross-linguistic comparison of Dutch (penultimate word-stress) and Turkish (word-final stress). The results of the experiment show a language-specific progressive use of metrical cues, with a facilitating effect of penultimate stress for the Dutch participants and of final stress for the Turkish participants.

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1B.04

Relative clause processing linking clause frequency and reading experience

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Studies of relative clause processing have consistently shown that subject relative (SR) clauses are easier to process than object relative (OR) clauses (e.g., *The newscaster explained that the bomb that [the police officers* eliminated]/ [eliminated *the police officers] was from the Second World War*). However, corpus-based studies have revealed that the difficulty of processing relative clause subtypes is largely determined by their frequency of occurrence (Reali & Christiansen, 2007). For example, OR clauses with an inanimate head (e.g., *the bomb*) and an animate clause noun (e.g., *the police officers*) are easier to process than SR clauses, because OR clauses with these concepts occur more frequently than the SR subtype (Desmet et al., 2006; Mak, Vonk, & Schriefers, 2002). In the current study we investigated what role frequency of *use* plays in the processing of Dutch SR and OR clauses.

In two experiments, participants read 40 relative clause sentences and 43 filler sentences, and answered a comprehension question about each sentence. Target sentences featured different noun pairings (abstract-concrete, animate-inanimate, concrete-abstract, and inanimate-animate), and were presented with SR and OR syntax to different participants. Based on distributions described in earlier work, these sentences were divided into a high and low frequency condition.

We made use of a self-paced reading (SPR) paradigm (*n=20*) and an eye-tracking (ET) task (*n=20*) to measure processing speed. Reading and viewing-time measures on the critical (i.e., *eliminated*) and the spillover region (i.e., *was from*) were compared between clause types, frequency conditions, and across tasks.

In both tasks, *frequency effects* were found at the spillover region with shorter processing times (reading times in the SPR and [selective] regression path durations in the ET task) for high than low frequency structures. In contrast, effects of *clause structure* only arose at the critical region in the late viewing-time measures of the ET task, with shorter viewing times in SR than OR clauses. These results show that frequency of occurrence and clause structure have differential effects on the processing of relative clauses, Additionally, speakers completed a reading habits questionnaire to assess whether their exposure to print predicted reading times. Results from the ET task showed participants who read a lot were faster to read high frequency sentences than low frequency sentences, while participants who read less took longer on low frequency sentences. The results provide a first indication of how individual differences in relative clause processing might be related to reading experience.

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1B.05

Relearning a forgotten childhood language

Jiyoun Choi, Mirjam Broersma
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This study investigates perception of Korean phonemes by Korean adoptees in the Netherlands. It investigates whether international adoptees, who have been cut off from their birth language in early childhood, retain any linguistic knowledge of that language. Anecdotal evidence suggests that adoptees do not retain any knowledge of the birth language by the time they have reached adulthood (as confirmed by Pallier et al., 2003, Cerebral Cortex, 13, 155-161; Ventureyra et al., 2004, Journal of Neurolinguistics, 17, 79-91). However, adoptees do seem to benefit from their exposure to the birth language when relearning it later in life (Bowers et al., 2009, Psychological Science, 20, 1064-1069;

Hyltenstam et al., 2009, Bilingualism: Language and Cognition, 12, 121-140). While those results have so far only been reported for very small numbers of participants, the current study addresses this issue with large numbers of participants. It examines whether Korean adoptees outperform Dutch listeners with no prior exposure to Korean in learning to perceive Korean phonemes.
28 adult Korean adoptees, who were adopted at an age of 3-69 months (i.e., 0-6 years) were trained and tested. As a control group, 15 native Dutch listeners, either partners or siblings of Korean adoptees (to control for socio-economic background), were trained and tested. Another control group of 25 native Korean listeners were tested without training. The adoptee and native Dutch groups were trained to identify a Korean three-way alveolar stop contrast ([t, t*, th]). As a control contrast, they were trained to identify a Japanese three-way length contrast for which all three groups should perform similarly. Participants received extensive training, consisting of thirteen training sessions over two weeks. Training consisted of an identification task with feedback. In order to assess participants' initial performance and improvement, a pre-test before training, intermediate test between training sessions, and a post-test after training were carried out, each consisting of an identification task and a discrimination task. Further, perception of similar contrasts but at untrained places of articulation ([p, p*, ph] and [k, k*, kh]) was assessed to investigate whether adoptees were better than Dutch control participants at generalizing knowledge about the trained contrast.
This study will elucidate whether international adoptees, by the time they have reached adulthood, retain any knowledge of the sounds of their birth language, whether such knowledge is accessible immediately or only after relearning the language, and whether age at the time of adoption affects retention of the language.

1B.06

Typicality effects on the logical interpretation of reciprocal sentences: A new experimental paradigm

Eva Poortman, Marijn Struiksma
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Since Rosch (1973), it is known that one-place predicates (e.g. bird, furniture) show typicality effects: some exemplars are 'more typical' instances of a concept than others. Recently, it has been proposed that such effects also exist for binary predicates (e.g. pinch, hate) and that they are crucial for explaining the interpretation of reciprocal sen-

tences (Kerem et al., 2011). We present experiments in which we provide an experimental paradigm that is necessary to support that proposal, called the Maximal Typicality Hypothesis (MTH).

(1) John, Mary and Sue are pinching each other
(2) John, Mary and Sue know each other

The MTH predicts (1) to receive a weak interpretation ('everyone pinches one other person') because it is more typical to pinch one person than two. Contrastingly, (2) receives a strong interpretation ('everyone knows everyone') because the concept know shows no typicality preference regarding patient cardinality. By collecting judgments on concepts and reciprocal sentences within pictorial settings, Kerem et al. found some correlations between a) typical patient cardinality for a predicate concept and b) interpretation of reciprocal sentences. However, their experimental paradigm only allows depictable verbs like pinch, which mostly showed a one-patient preference. Consequently, some correlations expected by the MTH were not significant. The current research used a new experimental paradigm that enabled investigation a larger verb set (including verbs as in (2)), with a broader range of typicality preferences.
Experiment 1 checked typicality preferences for the diverse verb set with a forced-choice task. Subjects were asked to choose between an agent acting on either one or two patients. We used a schematic representation method that allowed the inclusion of non-depictable verbs (e.g. hate, admire).
Experiment 2 tested the interpretation of reciprocal sentences containing the same set of verbs. In an acceptability task, subjects judged the acceptability of a reciprocal sentence in a given schematic situation (weak vs. strong). We found differences between verbs with respect to both patient cardinality preference (experiment 1) and acceptability of reciprocal sentences (experiment 2). Most importantly, we found a correlation between the two measures (r=.76, p¡.001), indicating that typicality affects the logical interpretation of sentences. This provides crucial evidence for the MTH.

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1B.07

Action verb comprehension reflects on-line sensitivity to motor specificity and sentence meaning: An EEG study using mu oscillations

Kevin J. Y. Lam, Shirley-Ann Rueschemeyer, Marcel Bastiaansen, Ton Dijkstra
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Embodied theories of language share the common position that comprehension entails contributions of sensorimotor experiences obtained during the learning of concepts. The theories, however, differ in how they specify the role of such contributions: Sensorimotor contributions are stable and context invariant, or flexible and context sensitive. Our experiment makes two new contributions to the study of embodied language: (1) Theoretically, we show that motor contribution to action verb understanding is flexible and sensitive to sentence context - when the overall sentence meaning is non-motoric, action verbs no longer show the predicted motor contributions that occur when the sentence meaning is motoric; (2) Methodologically, we show that the motor-based mu oscillations (8 - 12 Hz) recorded from scalp EEG - previously confined to the action execution and observation domain - is sensitive to the verb's motoric specificity (e.g., push is more specific than deliver), making it a useful measure to test temporally sensitive hypotheses on action-related language comprehension. Thus we offer new supporting evidence that clarifies motor contributions towards language comprehension at the sentence level using a temporally sensitive motor-based measure. We also discuss future directions that take advantage of the results to explore related issues.

1B.08

Children's processing of PP attachment ambiguities: evidence from Greek

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The aim of the present paper is to examine the processing of prepositional phrase (PP) attachment ambiguities in children. Specifically, PP attachment preferences were investigated in sentences such as:

O kipuros ekopse to kladhi me to maheri. *(VP Attachment)*

the-NOM gardener-NOM cut-PERF.3S the-ACC branch-ACC with the-ACC knife-ACC
'The gardener cut the branch with the knife.'
O kipuros ekopse to kladhi me to luludhi. *(NP Attachment)*
the-NOM gardener-NOM cut-PERF.3S the-ACC branch-ACC with the-ACC flower-ACC
'The gardener cut the branch with the flower.'

Most previous psycholinguistic studies have found faster online reading times for VP attachment structures [1]. This VP attachment preference has been attributed to the parser's initial interpretation of temporarily ambiguous PPs such as *me to maheri* and *me to luludhi* (in [1], [2] respectively) as potential arguments of the V *ekopse* (e.g. Rayer, Carlson & Frazier, 1983); the initial interpretation proves to be wrong when the PP is a modifier of the preceding NP [2], thus the parser takes longer to reach the correct interpretation due to reanalysis of the structure (garden path effect). Psycholinguistic research has shown that children generally process real time linguistic input similarly to adults (*Continuity of Parsing Hypothesis*, Clahsen & Felser, 2006), although it has been argued that children tend to rely more on structural information than adults (e.g. Trueswell, Sekerina, Hill & Logrip, 1999).
Twenty-two Greek monolingual children, aged eleven to twelve years old, participated in an online self-paced reading (SPR) experiment. The experimental sentences included temporarily ambiguous Greek V-NP-PP sentences in which four Greek prepositions were inserted (*me* [with], *se* [in], *ja* [for], *apo* [from]) so as to examine whether or not the lexical choice of the preposition plays a role in children's attachment preferences. The results showed faster reading times for VP attachment in the online reading task, and a significant preference for VP attachment (regardless of P) in the offline grammaticality judgment task that immediately followed the online task.

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7 Abstracts poster presentations Thursday June 7th

Poster session 2A: Thursday June 7th 13:00-13:45

2A.01

Syntactic ambiguity processing: How rhythm facilitates disambiguation

M. Paula Roncaglia-Denissen, Maren Schmidt-Kassow, Sonja A. Kotz
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In the current work we investigated the role of rhythm during syntactic disambiguation in auditory sentence processing. Syntactically ambiguous German sentences were spoken in constant or variable size rhythmic groups. We hypothesized that constant rhythmic groups provide predictable cues that facilitate syntactic parsing and consequently sentence comprehension. Accuracy rates were higher in subject-first disambiguation in both rhythmic contexts confirming previous evidence. EEG results revealed a larger positivity (P600) for object-first than for subject-first disambiguation only in rhythmically irregular sentences. No processing difference subject-first and object-first disambiguation was found in rhythmically regular sentences. These findings suggest that rhythmic regularity may affect parsing preference during syntactic disambiguation, indicating that rhythmic cues may facilitate the resolution of structural complexity in auditory sentence processing.

2A.02

Birth language attrition in Chinese adoptees

Wencui Zhou, Mirjam Broersma
PhD student from Max Planck Institute for Psycholinguistics, Nijmegen

This PhD project investigates perception and production of Chinese speech by Chinese adoptees in the Netherlands. Previous studies with international adoptees report no evidence of any retention of the birth language by the time adoptees have reached adulthood (Pallier et al., 2003, Cerebral Cortex, 13, 155-161; Ventureya et al., 2004, Journal of Neurolinguistics, 17, 79-91). Adoptees do, however, perform better when relearning their birth language than novice learners (Hyltenstam et al., 2009, Bilingualism: Language and Cognition, 12, 121-140).

This project explores the time course of forgetting the birth language during childhood, examining the effect of age at the time of adoption (AoA) and of length of residence in the Netherlands (LoR) (i.e., time elapsed since adoption). AoA is varied from one to five years, and LoR from one to four years. Participants are Chinese adoptees in the Netherlands between four and nine years old, whose birth language is either Mandarin or Cantonese, and an age-matched control group of native Dutch listeners with no prior experience with Chinese. They are tested on two levels of language knowledge: the phonological level and the word level. First, at the phonological level, participants are tested on perception and production of Chinese phonemes and tones before, during, and after extensive training. One group of Mandarin adoptees and one group of Dutch control participants are tested and trained on one Mandarin retroflex affricate contrast ([tʂʰ] vs. [tʂ]) and one Mandarin tone contrast (tone 2, low-high, vs. tone 3, high-low-high). One group of Cantonese adoptees and another group of Dutch control participants are tested and trained on one Cantonese dental affricate contrast ([tsʰ] vs. [ts]) and one Cantonese tone contrast (tone 2, mid-high, vs. tone 5, low-mid). Tests and training consist of XAB discrimination tasks, presented in the form of animated video games. Second, at the word level, participants are tested on thirty-six words in Mandarin and Cantonese, respectively, that are among the first words that children learn (Hao et al., 2008, Behavior Research Methods, 40, 728-733). Tests consist of picture-word matching tasks, also presented in the form of animated video games. This study will provide further insights into attrition of the birth language by investigating changes in birth language processing during childhood soon after adoption, and by investigating how AoA and LoR affect retention, attrition, and relearning of the birth language in international adoptees.

2A.03

Priming of nouns denoting man-made objects shows independent and slow activation of action and visual features: A behavioural priming study

Kevin J. Y. Lam, Shirley-Ann Rueschemeyer
Donders Institute for Brain, Cognition and Behaviour

Embodied theories of language share the common position that comprehension entails contributions of sensorimotor experiences obtained during the learning of concepts. There is evidence that the availability of modality-specific activation can be as early as 150 ms after word onset - strongly supporting the necessary and automatic role of sensorimotor involvement towards comprehension - but this is incompatible, for example, with the time

needed for word recognition. We explore the issue of relative timing of modality-specific feature activation to explain the above findings. Nouns denoting man-made objects sharing only action features (e.g., screwdriver - key) and those sharing only visual features (e.g., spoon - paddle) produced priming effects at two time points: Visual priming was observable with an inter-stimulus interval of 400ms whereas action priming was observable with 1,000ms. Importantly, we make the case that feature activation is a relatively slow process; once activated, however, it has a fast influence on the processing of a subsequent related word. The major implication of our findings is that the reported early effects reflect prior feature activation that helps with the processing of related words - a block of action-related words presented consecutively will show early effects because the feature is made available for the processing of these words. We also discuss future directions that take advantage of the results to explore related issues.

2A.04

The interplay between animacy and grammatical gender in the choice of a referring expression: Comparing Belgian and Netherlandic Dutch

Jorrig Vogels, Emiel Krahmer, Alfons Maes
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Standard Dutch distinguishes between common (originally masculine and feminine) and neuter gender nouns. In the third person singular personal pronouns, however, there is a three-way gender distinction. Thus, when speakers refer with a pronoun, they have to choose between different forms that do not map directly onto nominal gender. It has been claimed that in Netherlandic Dutch, the choice for a pronoun is becoming more semantically driven, with masculine and feminine pronouns marking a higher degree of animacy and individuation (Audring, 2006). In Belgian Dutch, the choice of a pronoun seems to be more connected to the original grammatical gender of the noun.
In this study, we investigate whether this difference between the two varieties also affects the choice between pronouns and less attenuated expressions, such as demonstratives and full noun phrases. Firstly, pronouns are used more often for animate entities than for inanimate entities (Fukumura & Van Gompel, 2010). If masculine and feminine pronouns mark a high level of animacy in Netherlandic Dutch but less so in Belgian Dutch, this effect would be predicted to be larger in Netherlandic Dutch. Secondly, two entities with the same grammatical gender may be conceived of as more semantically similar (e.g. Boroditsky, Schmidt, & Phillips, 2003), which may lead to lower accessibility and less pronoun

use (Arnold & Griffin, 2007). Hence, if grammatical gender is crucial for pronoun choice in Belgian Dutch but not in Netherlandic Dutch, a larger effect of gender similarity on pronoun use is predicted for Belgian Dutch.
To test these predictions, we conducted a cloze task in which speakers of Netherlandic and Belgian Dutch produced expressions referring to animate and inanimate entities. These entities had either the same or a different grammatical gender with respect to a competitor entity. Results will be presented at the conference.

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2A.05

Cognate facilitation is dependent on L2 proficiency

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Noun translation equivalents that share orthographic and semantic features are generally recognized faster than translation equivalents without such overlap. This cognate effect, which has also been obtained in sentence context, emerges from the co-activation of representations of a bilingual's first (L1) and second language (L2). Recent findings suggest that co-activation may be modulated by individual differences between bilinguals in terms of proficiency in L2 (Dijkstra & van Hell, 2003; Libben & Titone, 2009), given that co-activation depends of the relative activation of representations in L1 and L2. The present study examined if cognate facilitation in sentence context is subject to effects of L2 reading speed and L2 proficiency in general. We measured eye-movements and self-paced reading times for Dutch-English bilinguals reading L2 sentences that contained either a noun or a verb cognate. The bilinguals under examination, who are deemed relatively high proficient in their L2 English, showed differences in average L2 reading speed. Read-

ing times in both tasks showed that facilitatory processing of cognates was dependent on reading speed, which was related to general L2 proficiency. Cognate effects were observed predominantly for slower readers, but not for faster readers. The obtained pattern of results across different tasks suggests that co-activation and consequent cognate facilitation is influenced by the degree to which a bilingual activates their L2, which is dependent on L2 proficiency. This is in line with other evidence suggesting that L2 proficiency and age of acquisition influence crosslinguistic effects in both L1 and L2 (Titone, Libben, Mercier, Whitford, & Pivneva, 2011; van Hell & Tanner, 2012), and stresses the role of individual differences in language processing and lexical effects.

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2A.06

Processing the same words in different languages : An ERP study

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When reading in a foreign language, words that are similar in form and meaning to words in one's native language (so-called cognates) are easier to comprehend than words that do not share form and meaning across languages. Indeed, both behavioral and ERP studies have shown a cognate facilitation effect (e.g., [1][2]). However, it is unknown whether orthographically and semantically identical cognates are processed in a similar or in a different way in an L1 compared to an L2 context. The current study was the first to record ERPs to cognates and control words in a sentence context, both when bilinguals

read sentences in their L1 and in their L2.
Twenty French-English late bilinguals were presented with one block of English and one block of French low-constraint sentences. The French sentences were exact translations of the English sentences. Every sentence contained a cognate or a matched control word as the target word. The same participant saw only one version of the sentence (cognate or control) within and across the counterbalanced language blocks.
Our results showed a significant difference in the amplitude of the P200 component for cognates compared to controls in L2, but not in L1. Furthermore, when cognates in L1 sentence context were compared to the same cognates in L2 sentence context, a similar difference in the amplitude of the P200 component was found. These cognates had exactly the same orthographic form and the same meaning across the language blocks, and they were presented in sentences that were exact translation equivalents.
We conclude that the cognate status of a word influences its recognition in an L2 sentence context, as early as 200 ms after word onset. Interestingly, words that have exactly the same orthographic form and meaning across languages are nevertheless processed differently depending on the language of the sentence they are encountered in. We will discuss the consequences of these findings for the representation of cognates in the bilingual lexicon, and argue that the different phonology of cognate words across languages plays an important role in explaining our pattern of results.

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2A.07

Syntactic representations in bilinguals: evidence from cross-linguistic priming.

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University of Potsdam and University of Kaiserslautern, Northeastern University, University of Kaiserslautern

Syntactic processing in monolinguals has been thoroughly investigated in the last 30 years through a variety of methods and techniques, both in terms of language production

(e.g., Bock, 1986) and comprehension (Frazier, 1987; Sturt & Crocker, 1996, a.o.). It is only very recently, however, that researchers have started focusing on syntactic representations in bilingual populations (e.g., Clahsen & Felser, 2006; Loebell & Bock, 2003; Desmet & Declercq, 2006). The present study investigates syntactic priming in bilinguals aiming to shed more light to the question of whether syntactic representations between two languages are shared or not. Based on Loebell & Bock's (2003) study, our study examines the effects of cross-linguistic priming in Prepositional Object (e.g., Der Barkeeper ueberreichte den Cocktail an den grossen Mann, 'The barkeeper handed the cocktail to the tall man') vs. Double Object constructions (Der Barkeeper ueberreichte dem grossen Mann den Cocktail, 'The barkeeper handed the tall man the cocktail'). Structural priming effects in both main and subordinate clauses were investigated in order to ascertain the extent to which priming robustness depends on the type of clause. Forty advanced German L2 learners of English participated in a sentence completion task in which they were asked to provide the second part of German (prime) and English (target) sentences. In accordance with previous studies on cross-linguistic priming (Loebell & Bock, 2003), we found Prepositional Object and Double Object priming from German to English in main clauses. The effect of priming was much weaker, however, in subordinate clauses, most probably because of the word order differences between German and English.

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2A.08

Plural assignment in German

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The German plural system is relatively complex allowing several different endings partly going along with a vowel change of the stem (umlaut). There is no simple rule for the right plural assignment, although there is quite some predictability (Köpcke, 1988; Wegener, 2003), as the right plural assignment partly depends on the gender and ending of a noun. There has been quite some discussion going on whether German has any default plural, and Marcus et al. (1995) and particularly Clahsen (1999) claim, that -s is the only rule governed plural in German, although its type and token frequency is extremely low. Other authors (e.g. Wegener, 2004) interpret the s-plural more as an emergency plural, if nothing else goes and show, that there is a tendency in German to replace s-plurals in nouns of foreign origin by other plural forms once a noun has become more integrated in the German language.

As a follow-up study to a paper and pencil task concerning the assignment of German plural, subjects listened to monosyllabic German nonce words and assigned a plural to these nonce words by typing the plural form they would come up with first. Keystrokes were measured. Like in the paper and pencil task the gender given to the nonce noun did not play a decisive role in the plural assignment. Contrary to the paper and pencil task, plurals endings in -s were more often produced, but still only by 11 out of 35 subjects. 6 subjects assigned the ending -s to more than 10% of the nonce nouns, one subject even to more than 25%. Keystrokes revealed that subjects who hardly used the s-plural took longer for this assignment than for the other plural endings, while subjects who used the s-plural more excessively showed the reversed pattern. The results suggest different strategies in the plural assignment: While most subjects avoid the s-plural altogether, some seem to use it only if nothing else seems to fit for them, while for a small group of subjects the s-plural seems to be just one option between all the other alternatives.

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2A.09

Cross-modal effects on novel word consolidation

Iske Bakker (1,2), Atsuko Takashima (1,2), Janet van Hell (3), Gabriele Janzen (1,2) James M. McQueen (1,2,4)
1) Behavioural Science Institute, Radboud University Nijmegen; 2)Donders Institute for Brain, Cognition and Behaviour, Radboud University Nijmegen; 3) Pennsylvania State University; 4) Max Planck Institute for Psycholinguistics, Nijmegen

Previous work (e.g. Gaskell & Dumay, 2003; Dumay Gaskell, 2007) has suggested a role of sleep consolidation in the lexicalisation of novel words. In line with two-stage models of memory (e.g. McClelland et al., 1995), it has been proposed that the memory traces for newly learned words are initially dependent on medial temporal structures and acquire neocortical, more lexical representations during the first night's sleep after training. Only after sleep-dependent consolidation are novel words fully integrated into the lexicon and are therefore able to enter into lexical competition with phonologically overlapping existing words. This effect, observable as a slowing down of responses to existing words with a novel competitor, has been demonstrated using various tasks including lexical decision, pause detection and, recently, word-spotting (Dumay & Gaskell, 2012).
We investigated the time-course of lexicalisation of novel words learned in the visual and auditory modality. Subjects were familiarised with novel words either in a visual task (letter monitoring) or an auditory task (phoneme monitoring), and subsequently performed an auditory pause-detection task on existing words that overlapped with the learned novel words. Results indicated that, as in previous work, words learned auditorily enter into competition with existing words after one night's sleep, but not immediately after familiarisation. However, competition effects for novel words learned from print emerged only after a week. These results suggest that the formation of lexical representations of visually-acquired words that are abstract enough to enter into lexical competition in spoken-word recognition requires more than the one night's sleep that is sufficient for auditorily-acquired words.
This leads to the question whether the delayed emergence of competition effects for visually-

acquired words is due to the modality of acquisition per se, or whether cross-modal lexicalization effects require more time to arise than unimodal lexicalisation effects. Preliminary results from a follow-up experiment suggest that visually trained words do enter into competition after one night when the competition task is in the same, visual modality, and thus that it is the cross-modal aspect of lexicalisation that causes the delay when competition involving visually-acquired words is tested in the auditory modality. We tentatively propose that the formation of a truly abstract, modality-independent lexical representation is characterised by a longer and more gradual time-course than has previously been assumed.

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Poster session 1B: Wednesday June 6th 14:15-15:00

2B.01

Priming of Get- and Be-passives in English

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Previous sentence production research demonstrated ubiquitous passive-voice priming effect in English transitive sentence production. Recent research with adults suggested that priming of voice in English is sensitive to the repetition of notional verbs from prime to target (Myachykov, 2007; Scheepers, et al., in preparation). Alleged interchangeability of auxiliaries be and get, and optional truncation by omitting an agentive by-phrase, have been viewed as signs of the two passive variants subserving a single structural representation (e.g., Chomsky, 1981). Recent data appear to confirm this by showing that voice priming in English speaking 4-year olds is relatively immune to both auxiliary repetition (be and get) and by-phrase inclusion (Messenger, 2010; Messenger, et al., 2011). However,

recent corpus analyses including our own suggest by-phrases are less frequent in get- than in be-passives (e.g., Guoliang & Lei, 2010) and the two forms may cluster differently in relation to notional verb semantics (e.g., Medina, 2009). One explanation for these differences is, compared to the semantically shallow be in be-passives, get is not a true' auxiliary - it operates as a lexical rather than auxiliary verb, projecting its own semantics (e.g., Haegeman, 1985; HÜbler, 1998). If so, at least in adult performance, one could expect specific modulations within the general voice priming effect from both auxiliary repetition and by-phrase inclusion. Here, we report the results of a study that tested the independence of get- and be-passive structural representations in adult native English speakers.
Using a standard syntactic priming setup (cf. Bock, 1986), participants read aloud single-sentence passive primes, then produced single-sentence descriptions of pictured (transitive) target events. Two priming factors were orthogonally manipulated: (1) Passive auxiliary (be or get) and (2) by-phrase inclusion. We used binary logistic Generalized Estimating Equations for separate analyses of proportions of be- and get-passive responses as well as likelihood of agentive by-phrase inclusion. The analyses showed that there were more be-passive responses after full-passive primes than after truncated-passive primes. Since a comparable main effect was absent in get-passive responses, this suggests by-phrase inclusion supports the use of be- but not of get-passives (in line with corpora). Most importantly, our analyses revealed an auxiliary-repetition main effect (more be-passive responses after be-passive primes and more get-passive responses after get-passive primes). Our findings suggest that, although the same syntactic representation may underlie both passives in early development, these forms later become associated with distinct construction types susceptible to their own lexically-specific auxiliary priming effects.

2B.02

Thematic Role Assignment in Noncanonical Sentences: Is L2 Processing more 'shallow' than L1?

Gunnar Jacob, Hollis A. Thomann, Kalliopi Katsika, Shanley Allen, Neiloufar Family
University of Potsdam and University of Kaiserslautern, Northeastern University, University of Kaiserslautern

Even though real time processing of linguistic input is an essential part of second language acquisition, only a limited number of studies have examined online sentence processing of L2 learners. The main focus of these studies has been the amount and type of incoming information that L2 learners process in real time language comprehension, as

well as whether L2 learners' online processing can be native-like or not (e.g. Clahsen & Felser, 2006; Dallas & Kaan, 2008; Hopp, 2010). According to the Shallow Structure Hypothesis, L2 learners - unlike native speakers - have limited access to syntactic information during sentence processing (Clahsen & Felser, 2006). The present study aims to provide more insight into L2 learners' online processing routines focusing on L2 learners' online thematic role assignment in canonical and non-canonical structures. Previous research has shown that native speakers often misinterpret non-canonical sentences such as 'The dog was bitten by the man', assigning an agentive thematic role to 'the dog' and not 'the man' (Ferreira, 2003). Using Ferreira's (2003) experimental materials, we investigated the online processing strategies of 40 German advanced L2 learners of English in a self-paced reading task. Similarly to Ferreira's (2003) pattern of results for monolingual English speakers, our results indicate that German L2 learners of English make significantly more errors in semantically implausible than in plausible sentences. Strikingly, however, the L2 participants - contrary to the monolinguals - showed no significant difference between active and passive structures. These results are consistent with previous research on online L2 processing showing that nonnative parsing strategies differ fundamentally from native parsing routines in that they are mostly formulated on the basis of 'shallow' semantic rather than grammatical operations (Clahsen & Felser, 2006).

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2B.03

From Thinking to Thought: A Cognitive Approach to the Interpretation of Philosophical Texts

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Since the 1980s, research in the cognitive sciences and in pyscholinguistics in particu-

lar has emphasized the important functions of metaphor and analogy in cognition (Gibbs 2008, Gentner 2001). More specifically, given their roles in abstraction, conceptualization and reasoning, they promise to be especially important for a proper understanding of philosophical thought, where these cognitive processes are pervasive and performed at an especially high level.

The most ambitious attempt to put this intuition into practice was made by Lakoff and Johnson on the basis of their own 'conceptual metaphor theory' (2003). In Philosophy in the Flesh (1999), they aimed to lay bare the metaphorically mediated process through which abstract philosohpical concepts arise from mappings between 'experiential gestalts' rooted in our embodied experience. However, their particular approach has definite shortcomings (Pinker 2008, Westra 2008).

Nevertheless, the idea of appraoching philosophical texts from a cognitive perspective and with a particular focus on metaphor and analogy is a good one. The question is, Which particular conceptions of metaphor and analogy developed over the past couple decades in cognitive linguistics would be most useful and how can they best be applied? I want to make some specific suggestions in this regard. For instance, Gentner's structure-mapping theory (2008) seems better equipped than embodiment theory to capture philosophers' more abstract and complex metaphors and analogies. In addition, we must also take account of the reader's perspective. Thus, we should look closely at what text linguistics has found out about the contributions that metaphor and analogy can make to the cognitive process through which the reader actively constructs a mental model of the meaning of a text, or Textweltmodell (Skirl and Schwarz-Friesel 2007).

As a Ph.D. student trained in philosophy and currently writing a dissertation on analogy in Kant, I'm hoping to get feedback and suggestions from young researchers in psycholinguistics for designing and implementing this new, interdisciplinary approach.

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2B.04

There is no such thing as Prime Validity: Evidence for the Lexical Account of Masked Priming Effects

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Although the masked priming paradigm (Forster & Davis, 1984) is currently one of the most important techniques to investigate our mental lexicon, there is still a lot of disagreement about the source of these priming effects. It is commonly assumed that this technique operates by preactivating representations in the mental lexicon, hence creating lexical effects. There are, however, psycholinguists who disagree with this view. The most well-known opponents of the view that this technique probes the mental lexicon are Bodner and Masson (1997, 2001, 2003), who claim in several publications that masked priming effects are episodic rather than lexical. In their view, masked primes affect traces in episodic memory rather than preactivating representations in the mental lexicon. In an attempt to settle this ongoing discussion and learn more about the source of masked priming effects, we tried to find out whether participants in a lexical decision task can access episodic representations. If they can, this would cause problems for the masked priming technique, as we could no longer be able to defend a straightforward lexical source of the effects obtained with it. Obviously, a technique that is supposed to probe the mental lexicon should not allow episodic memory to be activated during tasks that do not logically require its activation. In a series of experiments, we took all of Bodner and Masson's (B&M) criticisms into account and designed experiments that maximized the chances of finding an episodic priming effect in a LDT by increasing Prime Validity, i.e., the prime's usefulness for making a correct response on the target, one of B&M's most important arguments in this discussion (2001, 2003). However, in none of our experiments did we find any trace of episodic priming, not even in conditions of high Prime Validity. It turned out that it was even impossible to replicate the effects reported in two of B&M's most influential publications (2001, 2003). Contrary to what they claimed, we failed to find any influence of prime validity on identity and associative priming. The systematic pattern in our findings causes us to raise the question: is B&M's concept of prime validity a valid concept itself?

Key words: Masked Priming effects; Mental Lexicon; Episodic memory; Prime Validity; lexical decision task; episodic links.

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2B.05

Ugh! and *Yuck!* A Corpus-Based Study on Naturalness of Expression

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Ugh! and *Yuck!* are commonly considered functionally equivalent interjections of disgust between which speakers may choose freely to voice their revulsion. The present case study shows that this assumption has proved untenable.
Corpus-based research (CHILDES, BNC) provides sufficient evidence that *Ugh!* and *Yuck!* already in the early stages of child language acquisition exhibit varying degrees of naturalness of expression. First, speakers in general prefer the use of *Ugh!* to express a sudden sensation of disgust, e.g. upon the sight of blood or an insect in their soup, while *Yuck!* becomes the interjection of choice when relating past events of this nature.
Second, whenever the utterance of *Ugh!* or *Yuck!* is accompanied by a reference to the stimulus inducing the feeling of disgust, this reference commonly succeeds *Ugh!* (57%, N=91) but precedes *Yuck!* (77%, N=53).
The two examples below illustrate these differences in use for *Ugh!* and *Yuck!*:

(1) We've already got some water. Ugh look, it's horrible. [BNC: KBW 155]
(2) E: Think what a luscious stock the dogs would make.
P: No they wouldn't. [...]
E: All that hair. Yuk. [BNC: KCO 3056]

Third, the form of the interjection may also play a significant role in determining the degree of naturalness of expression: while *Ugh!* imitates the sound of retching, and is thus

a 'natural' interjection, *Yuck!* is arbitrary in its form. Being the imitation of a reflex, *Ugh!* should lend itself more easily to reflexive (and thus more emotive) use, while *Yuck!* should show an affiliation to more controlled use.
Finally, the fact that child and adult speakers favour *Yuck!* to express less genuine, less immediate disgust, questions its classification as an emotive interjection (cf. Ameka 1992, Tesnière 1959). There seems to be an early shift in balance from predominantly emotive for *Ugh!* to predominantly cognitive for *Yuck!*, promoted by factors such as form and contextualisation, yielding *Yuck!* a less natural expression of disgust than *Ugh!*.
Emotive interjections have generally been classified as semi-automatic utterances, as reflexes to certain circumstances (cf. Ameka 1992, Ehlich 1986, Nuebling 2004). By introducing interjections such as *Yuck!*, the speaker begins to use them consciously. Interjections thus cease to be involuntary slips and become less reflex-like and immediate in their expression of emotion.

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2B.06

Infant coda perception: ERP evidence

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When children start to speak, they often omit target coda consonants from their productions, such as [kæ] for cat (Fikkert 1994, Levelt et al. 2000). These omissions in production could result from limited executive control over the production of coda consonants. Other possible hypotheses are that infants initially do not perceive coda consonants from the speech signal, or that they do perceive codas but fail to store them correctly in

their mental lexicon. The latter hypothesis predicts that infants should not notice mispronunciations of known words that include coda-omission; however, in cases when extra consonants are added, they should notice these, because they never make such types of errors themselves. Indeed, a recent study (Levelt, 2012) observed this asymmetry: When 14-month-olds were taught a novel word, they noticed when a consonant was added to the coda (/pat/ instead of /pa/), but not when the coda was omitted (/pa/ instead of /pat/). The insensitivity to coda omission together with the sensitivity to coda addition suggests that infants this young were at least able to perceive codas at some level, but are not yet able to encode them lexically.
The present study aims to further explore whether codas are represented correctly at a lower level of speech perception, namely at the phonetic/surface level. We tested 16 14-month-olds (6 females) with an oddball paradigm that peeks into earlier stages of language processing, using Event-related potentials (ERPs). Crucially, our experiment is not a word-learning task but a pure acoustic task. Infants listen to a series of the same monosyllabic non-word while occasionally a deviant non-word is presented. The difference between standard and deviant will be the presence or absence of a coda in an otherwise identical syllable, such as /ba:/ and /ba:t/. Both directions of change were tested. If infants notice the deviant (in either condition), a mismatch response (MMR) should be elicited. Results show again a similar asymmetry as in Levelt (2012): There was a significant MMR for 'baat'-deviant versus 'baat'-standard ($F(1,15 = 4.66$, $p = .03$), which suggests that infants noticed the t-addition, but there was no such difference for the ERPs corresponding to the 'baa'-words ($F(1,15)$ $p<1$). This indicates that the constraint that prevents infants from storing codas into the mental lexicon correctly is already active at the phonetic level.

2B.07

Syntax in Music and Language: Structural Integration Priming

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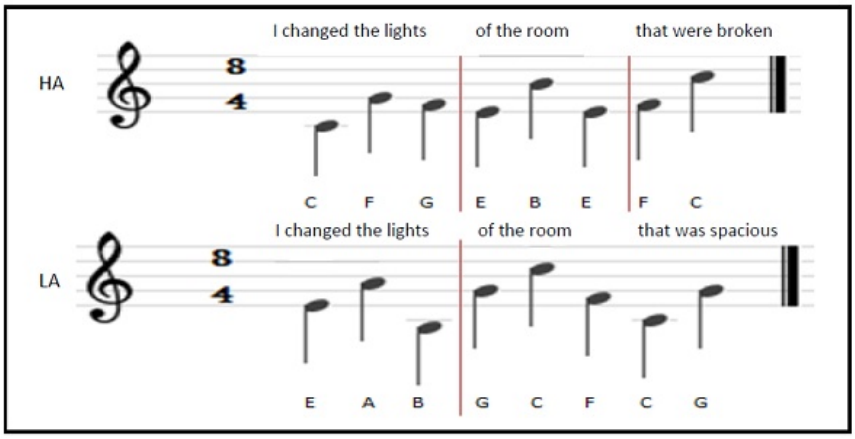
Studies on syntactic priming have shown priming effects for the attachment of relative clauses to either an initial or modifier noun of a complex noun phrase (e.g., Desmet & Declerck, 2006) and cross-domain priming between arithmetic and language (Scheepers et al., 2011). These effects cannot be explained by priming on the level of syntactic rule representations, and thus suggest a more general level of priming. In the present study we link this more general level of syntactic processing to the theory of Shared Syntactic Inte-



gration Resource Hypothesis (Patel, 2003) which proposes that the structural integration of a melodic or linguistic sequence is expressed as a domain-general process with limited resources. If such a process of structural integration can account for the recent findings in syntactic priming, and if music and language share the same structural integration processing, a form of syntactic priming should also be found between these domains.

The experiment indeed provided evidence for cross-domain priming between language and music. Participants first listened to melodies consisting of eight notes. The fourth note always came from a different harmonic domain than the first three notes, thereby creating a perceptual transition (otherwise note 4 would sound false, in reference to the previously heard tones). In the high-attachment (HA) condition, there was a transition back to the initial harmonic domain on note 7; similar to a high-attachment sentence, this sequence had an initial part, a middle part, and an ending that is related to the initial part (Figure 1). In the low- attachment (LA) condition, there was only an initial part and a second part. After hearing these melodies, the participants performed a small melody recognition task to keep up attention during the melodies, and then completed a sentence fragment. Participants were more likely to complete fragments with high attachment after high attachment prime melodies, an effect of 7% ($Z = 2.07$, $p = 0.04$). This new effect of music-to-language priming can be interpreted as a clear effect of cross-domain syntactic priming based on syntactic integration processes.

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2B.08

Methodology to measure the understanding of verbal irony

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Understanding the verbal irony by children is an aspect that has not yet been addressed widely (see Milanowicz, Bokus, 2011). Understanding verbal irony requires the understanding of hidden meaning of an utterance. (Giora i Finn 1999, 2008), which is activated in information processing and does not match the literal meaning. Understanding of verbal irony requires noticing the disparity between what has been said and what the speaker meant to express. The ability to understand an ironic utterance correlates with the knowledge of communication conventions, their frequency and prototypicality of the utterance. (Colston i Gibbs 2007). Understanding irony supplies the researcher with the information on the intention of the speaker, on his/her knowledge of conversational principles and understanding, why the principles might not be followed and what additional information might be expressed through it. (Rattray, Tolmie 2008).

Information on understanding verbal irony by a child is crucial in the perspective of providing the child with the right stimulation, supporting the child's development and communicating with him/her.

Recent research suggest that despite of the previous findings of the last thirty years, children are able to understand the irony much earlier than what has been believed in the age of eight or nine years old. (Recchia 2010). However, more research is needed on the topic. The poster will briefly present the current state of the research on verbal irony, as well as the method used and will describe a new method which is being developed at the University of Warsaw. It is to be used to test the correlation between child's pragmatic competencies, theory of mind and the ability to understand verbal irony.

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2B.09

Neural networks involved in retrieval of newly learned words and effect of overnight consolidation - an fMRI study -

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Declarative memory appears to involve two separate systems, with more episodically oriented memories coded in a hippocampal network, and more non-episodic or semantic memories coded in a neocortical network. Previous work (e.g. Dumay & Gaskell, 2006) has shown a role of sleep in the lexicalization of novel words. In line with the two-stage model of memory proposed by McClelland and colleagues (1995), the memory traces for novel words are initially dependent on hippocampal structures. However, a shift towards neocortical representations occurs during the first night's sleep after training. This shift, or integration of newly learned words into the lexicon (lexicalization) can be observed behaviourally as lexical competition, where novel words slow down recognition of phonologically overlapping known words.

To extend understanding of how newly learned words are incorporated into the semantic system, we conducted an fMRI study to elucidate the neural processes underlying sleep-dependent lexicalization, with the additional aim of investigating multimodal information integration in word learning. As a first step towards studying the acquisition of multimodal word meanings, we familiarized subjects with the phonological form of 40 novel words, of which 20 were associated with pictures of novel objects ('picture-associated word') and 20 were not ('form-only words'). Immediately after training (Day1) and on the following day (Day2), we recorded the BOLD response to auditorily presented 'trained novel words', 'untrained novel words' and 'existing words', and administered a lexical competition task

to test the effect of novel words on phonologically overlapping existing words.
Behavioural data showed enhanced performance in recognition and recall of novel words after sleep, with a greater benefit for picture-associated words. However, lexical competition on Day2 was greater for the form-only words. The fMRI data showed more involvement of the hippocampal network for picture-associated words than for form-only words. In contrast, form-only words activated the semantic memory network already on Day1, whereas this was more apparent on Day2 for picture-associated words. This implies that the consolidation/lexicalization process differs depending on the degree of involvement of the two memory systems, with a greater involvement of the hippocampal system for picture-associated words. Stronger episodic memory traces might slow down the overnight shift of the novel picture-associated words to the lexical network relative to the faster integration into this network of the form-only words.

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