

New Directions in Implicit and Explicit Language Learning

Conference handbook

Lancaster, June 10-11, 2015



ORGANISATION

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SPONSORSHIP

We are grateful to the Department of Linguistics and English Language and to the European Second Language Association for their financial support.

IMPORTANT INFORMATION

Location

- The symposium will take place in the FASS Building (building 21 on campus map).
- Once you enter the building, simply follow the signs to the Conference Office on the ground floor.
- Keynotes, talks and poster session will take place in Meeting Rooms 2 and 3. (These rooms are combined to form a larger room.)

Registration

- The registration desk is located outside our meeting room.
- The desk will be manned between 8:30 and 9:00 on Wednesday and Thursday as well as during coffee breaks.

Coffee breaks, lunch, and dinner

- Coffee breaks (Wednesday, Thursday) and lunch (Thursday) will take place in the area outside our meeting room.
- Lunch on Thursday is included in the registration fee but participants need to make their own arrangements for Wednesday. There are many options on campus, and our volunteers are happy to point you in the right direction on the day.
- We have organized a conference dinner at The Borough, a pub in Lancaster city centre. However, registration is required via email to Lucy Macculloch (l.macculloch@lancaster.ac.uk) by June 2nd, 2015.

Materials and readings

- We have created a Dropbox folder for the symposium and you will receive (or already have received) an e-mail with an invitation to join.
- Dropbox is a file-sharing system that allows us to share materials and readings. Please familiarize yourself with how Dropbox works before starting to use the system: <https://www.dropbox.com/>

Internet access

- To access the Visitor Wi-Fi network, simply select the "LU-Visitor" network, then follow the registration screens.
- Visitor Wi-Fi access will last for 24 hours. For longer access, you will need to register again.
- For support on the day, please see the Conference Office desk outside our meeting room.

Food and drink on campus and in town

Below is a list of favourites, based on an informal e-mail survey of Lancaster linguistics staff and students.

Campus:

Note: There are many options on campus. For a comprehensive list, please check the campus catering map in your conference pack (or on our Dropbox).

Café 21	Nice vegetarian, vegan, and gluten-free food, great views, but 15-min walk from venue and slow service.
Pizzetta Republic	Good restaurant for those who like pizza, late opening times. Good for coffee, too.
Grizedale Café Bar	Famous for Stone Willy's pizzas and hot wraps as well as dinky dipping hot donuts with a choice of sprinkles and sauces.
Sultan of Lancaster	Indian restaurant and takeaway, serves a variety of curries, chicken and wraps. Late opening times.
The Deli	Popular deli salad bar with fresh, homemade tartlets, a selection of meats and cheeses as well as hot roast sandwiches and filled focaccias.
The Lounge	Restaurant on campus, right next to our venue. Good food, though slow service. Also good place for a sit-down coffee.
The Mill at Fylde College	A great choice of fresh toasties and sandwiches or for something more filling, try the burgers and burritos. They serve "Primal Feast burgers, with two to choose from weekly including camel, alpaca, elk and kangaroo." Open for dinner, too.
The Trough of Bowland	Traditional homemade pie served with potatoes and vegetables from 12.00pm. Open for dinner, too.
Trevor at Furness College	Freshly ground coffee, whole-leaf brew tea and a variety of cakes with gluten-free options.
Wibbly Wobbly Burger	Good burger place, not on the campus map, simply follow directions to Grizedale College. Open till 11pm.
The Winning Post at Cartmel College	Serves a range of traditional pub food including starters, sharers, sandwiches and classic meals such as lasagne, mixed grill and gammon steak. Open for dinner, too.

Lancaster town centre:

Note: For restaurants, phone numbers are provided below. Reservations are recommended, especially for larger groups.

1725 Market Street (01524-66898)	Nice Tapas restaurant. Serves dinner until 21:30 (though open for drinks until 23:00).
Blue Moon 6 Rosemary Lane (01524-381111)	Nice restaurant, with good service. "Gorgeous Thai food", as one of our students says. Shuts at 23:00.
Full House Noodle Bar 21 Common Garden St (01524-842888)	Chinese, Malaysian. Very casual. Just walk through the shop and go upstairs. Shuts at 21:00.
Kashish 32 Parliament Street (01524-388 222)	Good Indian restaurant. Bring your own alcohol (which can be purchased at nearby Sainsbury's supermarket...). Open till 23:00.
Priory Hall 10 China Street	Serves excellent coffee from local, award-winning roastery (Atkinson's). Nice cakes, too. Shuts at 17:00.
Sun Café 25 Sun Street (01524-846252)	Nice restaurant, Mediterranean cuisine. They also run Sun Pizza, a good pizza restaurant in the same street.
Sun Pub 63-65 Church Street (01524-6600)	Good pub food, also nice for drinks.
The Borough 3 Dalton Square (01524-64170)	Nice pub in town centre, has its own brewery. Serves food till 21:00, drinks till 23:30.
The Music Room Sun Square	Serves excellent coffee from local, award-winning roastery (Atkinson's). Nice cakes, too. Shuts at 17:00.
The Tap House Gage Street (01524) 842232	Artisan brews and niche wines, good for drinks (open till midnight)

SCHEDULE

Wednesday, June 10, 2015

8.30 to 9.00	Registration
9.00 to 10.30	Opening remarks, followed by Aline Godfroid: Eye-tracking workshop
10.30 to 11.00	Coffee break
11.00 to 12.00	Aline Godfroid: Eye-tracking workshop (continued)
12.00 to 13.30	Lunch break (not included in registration fee)
13.30 to 15.00	Kara Morgan-Short: EEG/ERP workshop
15.00 to 15.30	Coffee break
15.30 to 16.30	Kara Morgan-Short: EEG/ERP workshop (continued)
16:30 to 17:30	Keynote: Zoltan Dienes
19.00 onwards	Dinner in town at The Borough (reservation necessary)

Thursday, June 11, 2015

8.30 to 9.00	Registration
9.00 to 10.15	Welcome by Prof Greg Myers, Head of Department of Linguistics and English Language, followed by Keynote: John Williams
10.15 to 10.45	Aline Godfroid
10.45 to 11.15	Coffee break
11.15 to 11.45	Sible Andringa
11.45 to 12.45	Keynote: Kara Morgan-Short
12.45 to 14.30	Lunch break (included in registration fee) and poster session
14.30 to 15.30	Keynote: Padraic Monaghan
15.30 to 16.00	Elizabeth Wonnacott
16.00 to 16.30	Coffee break
16.30 to 17.00	Panos Athanasopoulos
17.00 to 17.30	General discussion and closing statements

KEYNOTES AND TALKS

Wednesday, June 10, 2015

Zoltan Dienes (University of Sussex): Knowing when to say No: The importance of using Bayes factors in implicit learning research

Many papers in many disciplines use non-significance as a criterion for asserting the null hypothesis. I illustrate the problem with research seeking to demonstrate or refute unconscious processes, such as implicit learning or subliminal perception. Typically, concluding knowledge is unconscious or perception is subliminal relies on asserting the null hypothesis of chance levels of conscious knowledge. Non-significance has been the near universally used criterion for asserting the null. We all know that this is entirely invalid; fortunately now we have the tools to do considerably better. These Bayesian tools allow previous conclusions to be re-evaluated, as will be demonstrated. It is not that the sceptics have been more rigorous; their denial of unconscious knowledge often rests on asserting the null hypothesis of no effect under certain conditions based only on non-significance. We all know that this is entirely invalid. Thus, such claims will also be re-evaluated. I will show how both objective and subjective measures can be implemented to explore unconscious processes while escaping the inferential pitfalls of significance testing. The general approach, while illustrated with research on implicit processes, is applicable to all research that uses inferential statistics.

Thursday, June 11, 2015

John Williams (University of Cambridge): Semantic implicit learning: the nature of what is learned, the role of prior knowledge, and the role of awareness

In this talk I will focus on the nature of the knowledge acquired through implicit learning, and the constraints upon what can be learned, with specific reference to semantic implicit learning in language. Semantic implicit learning (SIL) refers to learning semantic-based generalisations without intention and without awareness of what they are. Evidence of SIL has been obtained in both non-linguistic and linguistic domains. All of the studies show generalisation beyond training data, but an important and unresolved issue is whether this is based on abstract categorical rules or mere similarity between training and test items. A related issue is whether all semantic regularities are learnable, or whether SIL is constrained by prior linguistic knowledge. Both of these issues are critical to our understanding of the nature of the implicit learning process, and its relevance to second language learning. I shall present some relevant empirical evidence, and then show how a computational model that utilises distributional semantic representations can simulate SIL effects, including prior knowledge constraints, without utilising categorical representations. Finally, I will discuss whether categorical

representations are necessary at all, and if so, how their emergence might be facilitated.

Aline Godfroid (Michigan State University): The effects of implicit instruction on implicit and explicit knowledge development

This study extends the evidence for implicit adult second language (L2) learning, which comes largely from (semi-)artificial language research, to German. Upper-intermediate L2 German learners performed a sentence-picture matching task on spoken sentences containing a difficult morphological structure, namely strong, vowel-changing verbs (e.g., sprechen [to talk] → spricht [talks]). Towards the end of exposure, the mandatory vowel change was omitted (e.g., * sprecht), yielding ungrammatical verb forms (compare Leung & Williams, 2012). Of interest was whether learners would slow down their judgments, as such reaction time (RT) increases would signal grammatical sensitivity and therefore potentially implicit knowledge. Participants also completed two pre- and posttests—word monitoring (Granena, 2013) and oral production—to determine whether the effects of the learning task transferred to different measures of implicit and explicit knowledge, respectively.

Post-experiment interviews revealed 33 out of 38 L2 learners remained unaware of the ungrammatical verbs in the exposure task; however, they showed significant sensitivity during listening as evidenced by a RT slowdown on ungrammatical trials, just like a German native speaker comparison group. The unaware learners also improved significantly from pretest to posttest on the word monitoring task, whereas an untrained control group showed no changes. Specifically, trained individuals went from a preference for ungrammatical verbs (i.e., reverse sensitivity) at pretest to no preference for either verb form (spricht or * sprecht) at posttest. This suggests that, while changes in participants' interlanguage occurred as a result of the exposure task, no evidence for full-fledged implicit knowledge was found. Finally, results from the oral production test indicate that participants who received input flood produced the targeted verbs more accurately than those who did not. Evidence with regard to their ability to generalize the stem-vowel change to other strong verbs was inconclusive. Overall, these findings support the simultaneous development of implicit and explicit knowledge under incidental learning conditions. This study illustrates how research questions and paradigms from cognitive psychology can be applied to natural adult L2 learning and highlights some of the lessons learned and new perspectives uncovered during this process.

Sible Andringa (University of Amsterdam): Comparing implicit and explicit grammatical processing in an eye-tracking measure: A validation study

This study was motivated by Andringa and Curcic (2015). This study was an artificial grammar learning experiment in which participants had to learn a

particular grammatical structure. Explicit learners were compared to an exposure-only group. The goal was to see if explicit knowledge of the target structure could somehow be a shortcut to more implicit, native-like grammatical processing as assessed in a visual world eye-tracking paradigm. While a group effect was observed, it was unexpected and difficult to interpret. One of the reasons for the interpretation problems was an absence of proper reference data. How do people behave when they process the target structure consciously, and what is typical of implicit, unconscious processing? This is the gap this study tries to fill. In doing so, the study places itself in a strand of research in the field of second language acquisition that has tried to determine what tasks might be measures of either explicit or implicit knowledge and which task properties might bias towards the measurement of either explicit and implicit knowledge (e.g., Ellis 2005, Godfroid et al. 2015, Rebuschat et al., 2015).

A within-participant design was used to learn how the presence or absence of awareness affects eye-movement behavior in a visual world paradigm. The target structure was differential object marking in Spanish, a rule according to which direct objects are marked for animacy, which allowed participants to predict the animacy status of upcoming direct objects in the sentences they listened to. Both native speakers and fairly advanced learners of Spanish were asked were tested using this paradigm to find out if awareness of the target structure affect first and second language users equally. In this presentation, I will present the first results, that show clear effects, and discuss what they mean for the ongoing research project and the measurement of grammatical knowledge in SLA research.

Kara Morgan-Short (University of Illinois at Chicago): Implicit-explicit issues in second language acquisition: The potential of event-related potentials

The potential of brain-based electrophysiological measures to contribute to implicit-explicit issues in second language (L2) acquisition is significant and, as of yet, largely unrealized. The primary electrophysiological measure used in L2 research is the event-related potential (ERP), which provides fine-grained temporal information about the neural activity that underlies a cognitive event, such as processing a word or an aspect of grammar. However, the mapping of ERPs to underlying mechanisms is a formidable challenge and limits our ability to interpret such signals as a reflection of explicit or implicit processes, i.e., processes that do or do not involve awareness. In this talk, I first provide an overview of ERPs and will discuss how their temporal, polar and scalp characteristics can be interpreted. Next, I describe the identifying characteristics of ERP components typically evidenced in language processing, e.g., the N400, the (L)AN and the P600, consider what underlying mechanisms each component is understood to reflect, and discuss whether these mechanisms can be interpreted in terms of explicit or implicit processing and knowledge. Finally, I provide several examples of how ERP research has been informative to questions related to implicit-explicit conditions, learning, and knowledge. In general, I argue that

ERP research can provide unique insights into implicit-explicit questions of L2 processing and knowledge even though clear associations between language-related ERP components and specific underlying mechanisms remain elusive.

Padraic Monaghan (Lancaster University): Modelling multiple cues in language learning

Multiple cues are prevalent in situations where children are acquiring language. For speech segmentation, word-meaning mappings, and learning grammatical categories of words, phonological and prosodic information from the word itself is supported by distributional information from the co-occurrence of words in phrases, as well as gestural and joint-attention information from the speaker.

How does the language learner monitor and use these multiple cues in guiding their learning? Previous theories differ in the extent to which multiple cues contribute explicitly and implicitly to learning. Multiple cues may co-occur to increase the salience of information to promote learning – if two cues indicate structure in the same way this increases the learners confidence that this structure is nonaccidental. Alternatively, cues may be combined implicitly according to their reliability. However, these theories ignore the way in which multiple cues are distributed in the environment, which appear to be serendipitously arranged, such that when one cue is unreliable or weak, another cue is more stably present (Christiansen & Monaghan, in press). The consequence of this is that the language learner can apply multiple cues across a range of situations, which results in reliable learning, but also requires limited attentional load as not all cues have to be attended to all the time. Furthermore, the outcome of learning is a robust system that does not.

We test this novel hypothesis using a computational model of multiple cues – distributional, prosodic, and gestural information. The model learns to associate phonological subsequences with one of several objects that appear in the visual input. The model shows how learning word-referent mappings is improved from multiple cues over single cues, how learning from multiple cues is resistant to noise in these cues, and how noisy input results in learning that is not dependent on any cue or cue combination in the input. These computational modelling predictions are then tested in a series of experimental studies, based on cross-situational learning of word-object mappings (Monaghan & Mattock, 2012), where multiple cues are variously present or absent in the environment of the learner. The modelling predictions are supported by these empirical studies. A question raised by the experimental work is the extent to which cues are explicitly or implicitly represented as the learner acquires the language, and the relative operational use of these cues during acquisition.

References

- Christiansen, M.H. & Monaghan, P. (in press). Division of labor in vocabulary structure: Insights from corpus analysis. *Topics in Cognitive Science*, in press.
- Monaghan, P. & Mattock, K. (2012). Integrating constraints for learning word-referent mappings. *Cognition*, 123, 133-143.

Elizabeth Wonnacott (University College London): Construction learning in 5 year olds: The role of input

Acquiring a language involves acquiring links between phrasal forms and semantic structures. Much research has investigated the nature of children's earliest phrasal representations, with debate focusing on whether these are fully abstract (possibly reflecting a role for innate knowledge) or linked to specific lexical items. However there is little relatively experimental research which directly investigates whether children can learn such structures from simple input exposure, and how this learning is related to the structure of their input.

I will present an experiment (conducted in collaboration with Adele Goldberg and Jeremy Boyd) which demonstrates that children as young as five years old (M = 5:2) generalize beyond their input on the basis of passive exposure (no feedback) to a novel argument structure construction. The novel construction that was used involved a non-English phrasal pattern: VN1N2, paired with a novel abstract meaning: N2 approaches N1. At the same time, we found that children were keenly sensitive to the input: they show knowledge of the construction after a single day of exposure, but this grows stronger after 3 days. Importantly, children generalized more readily to new verbs when construction was exemplified with multiple verbs, suggesting that variability drives verb-general representations.

Panos Athanasopoulos (Lancaster University): Linguistic relativity and statistical learning: Unconscious cognitive restructuring in language acquisition

To what extent does acquiring a language shape our mental schemata of reality and the world? Evidence from the developmental literature shows that core, possibly innate, cognitive properties in humans (such as categorization) are susceptible to restructuring, or fine-tuning, once acquisition of the lexical and grammatical categories of the ambient language begins (Levinson, 2001). Arguably, this process is unconscious (Franklin et al., 2008) and may unfold over a number of years (Lucy & Gaskins, 2003). If this is the case, then a question arises regarding further restructuring of the language-thought relationship forged during L1 development: Can learning novel lexical and grammatical categories in a second language (L2) change the way individuals categorise and construct conceptual representations of objects, events, colours, spatial relations, time etc.? Recent evidence from categorization behaviour in adult and childhood L2 learners in both concrete (colour, objects)

and abstract (aspect, time) domains show that such restructuring is possible, typically indexed by categorization behaviour in L2 users that is 'in-between' that of their monolinguals peers. Given that L2 learners are rarely, if ever, given explicit instruction on categorization behaviour in the L2, the mechanisms behind this unconscious behavioural shift remain poorly understood. I will argue that implicit statistical learning provides a ready framework in which to empirically refine, and theoretically advance the study of the dynamic relationship between language and cognition in the human mind throughout the lifespan.

POSTERS

Nadiyah S. Aleraini (Lancaster University): Investigating focus constructions in an EFL context

This study is motivated by a cognitive and constructionist approach, which I find to be suitable for researching syntactic means for information highlighting in an EFL context. Cognitive approaches are usage-based approaches that view language as part of human cognition which is used as a means for making meaning in a social context (Ellis & Cadierno, 2009; Tomasello, 2003). This model provides a natural way to consider ways in which lexically partially specific, syntactically complex patterns are paired with certain conventional meanings. The study aims at finding out the type of knowledge Saudi advanced learners have about the conventionalized ways of information highlighting in English.

The field of SLA research has witness an increased interest in the distinction between implicit and explicit knowledge in relation to the identification of linguistic knowledge (DeKeyser, 2003, 2013; Ellis 2005; Hulstijn 2005), which had led to different attempts to identifying reliable measures of implicit and explicit knowledge (Han & Ellis, 1998; Ellis et al. 2009). The type of knowledge L2 learners have about the conventionalized ways of information highlighting in English has received little attention in the literature. Some studies have been mainly interested in one type of knowledge, namely explicit knowledge, using retrospective interviews to assess learners' explicit knowledge about the syntactic means of information highlighting in English (Callies, 2009). The present study is interested in examining L2 learners knowledge of focus constructions using a different measure of explicit knowledge as well as looking into L2 learners' implicit knowledge of focus constructions related to object focus. These constructions are *it*-clefts, *Wh*-clefts, reversed *Wh*-clefts and preposing constructions. A pilot study was implemented as a preliminary investigation to find out to what extent native speakers of English and advanced learners (L1 Arabic) show different preferences for the use of English object focus constructions in certain communicative contexts. In order to do so, native speakers were asked to perform the test, creating a native-like baseline. The pilot study employed a test of focus constructions (designed by the researcher) and a confidence rating task as an instrument to assess learners' knowledge and awareness of English focus constructions related to object (patient) focus.

The present study aims at finding out the type of knowledge Saudi learners have about English focus constructions, related to object focus, by conducting an off-line tasks, namely a rating task and source attribution task (rule, intuition, guessing), and an on-line task (self-paced reading experiment).

Katharina Baumgart (University of Tübingen): Deductive and inductive grammar learning in second language acquisition

A central issue in Foreign Language Teaching and Learning arises around the question how grammatical regularities are best taught. Generally, two different didactical approaches are used in the explicit teaching of grammatical regularities: deductive and inductive teaching. In the traditionally more teacher-centered deductive approach, top-down processes are promoted. Thus, the teacher typically introduces grammatical rules to the students before they practice and apply the rules in examples. In contrast, in recent years more student-activating, self-regulated learning techniques have become more prevalent, including data-driven, discovery-based learning. In such an inductive approach, the teacher provides the students with example material and instructs them to discover the underlying rules (Takimoto, 2008).

Studies concerning the benefits of both teaching styles provide inconsistent results as to whether inductive or deductive learning is advantageous in second language acquisition (e.g. Takimoto, 2008, Erlam, 2003, Haight et al., 2007). One reason may be the large methodological differences between the studies. In a meta-analysis, Alfieri et al. (2011) compared different teaching styles across various contents. Studies investigating mathematical, scientific, and problem solving skills were included as well as studies on verbal abilities such as text understanding. They found the guided inductive approach to be most beneficial. Against this backdrop, we explore the impact of inductive and deductive teaching on grammar acquisition.

The planned study aims at investigating the effectiveness of deductive and inductive teaching systematically in a controlled laboratory setting as well as in the classroom. Latin is used as the target language, being a natural language and at the same time not being spoken anymore, so that incidental learning outside the classroom context is very unlikely. Using a computer-based approach for both conditions, learners in the deductive condition will be first presented with the grammatical rules, according to which Latin morphology is built, before having to recover them in the stimulus sentences. In the inductive condition, learners will not see the rules but will be supported by metacognitive prompts. As stimulus material, we will use simple Latin sentences consisting of subject, object and predicate in varying word order. The words will be chosen out of 4 different nouns presented in subject/object function and 4 verbs. Taking into account all possible combinations, 192 different phrases will be presented, which takes about 30 minutes. The difficulty of the task and individual learner differences will explicitly be taken into account in the analysis.

References:

- Alfieri, L., Brooks, P. J., Aldrich, N. J., & Tenenbaum, H. R., (2011). Does discovery-based instruction enhance learning? *Journal of Educational Psychology*, 103 (1), 1-18.
- Erlam, R. (2003). The effect of deductive and inductive instruction on the acquisition of direct object pronouns in French as a second language. *The Modern Language Journal*, 87 (2), 242-260.

Haight, C. E., Herron, C., & Cole, S. P. (2007). The effects of deductive and guided inductive instructional approaches on the learning of grammar in the elementary foreign language college classroom. *Foreign Language Annals*, 40 (2), 288-310.

Takimoto, M. (2008). The effects of deductive and inductive instruction on the development of language learners' pragmatic competence. *The Modern Language Journal*, 92 (3), 379-386.

Cylcia Bolibaugh (University of York) and Patrick Rebuschat (Lancaster University): Awareness and individual differences in statistical learning

This poster will report preliminary findings from a study which seeks to account for the discrepancy in learning outcomes between statistical learning studies and second language learning. Adult second language learners have an attested tendency to both under and over-generalise the linguistic exemplars to which they are exposed, producing speech which is either ungrammatical (undergeneralisation, e.g. Bardovi-Harlig, 2013), unidiomatic (overgeneralisation, e.g., Siyanova and Schmitt 2008), or both. Given these tendencies, it is natural that a central preoccupation of second language researchers is what use learners are able to make of the information available in the linguistic input. Statistical learning studies are similarly concerned with discovering the learnability of various linguistic properties, including gradient generalisation: a recent series of statistical learning experiments has demonstrated that adult learners are able to use co-occurrence information to either generalise across lexical items or restrict generalisation to lexically specific contexts, depending on the makeup of the exposure corpus (Reeder et al 2013). Statistical learning experiments thus demonstrate that adult learners' inferences *can* make optimal use of the information in the linguistic environment given certain types of drastically simplified input, whilst second language studies document the fact that learners typically do not do so when faced with natural language input.

In order to increase the comparability of statistical learning and second language studies and thus begin to reconcile these differences in outcome, we adapted a well-known statistical learning paradigm to take into account variables central to SLA research: the type of knowledge (whether implicit or explicit) which results from training, and the influence of cue competition and individual cognitive differences in learning and developing awareness. In the experiment, participants listened to strings consisting of nonce pseudowords generated by a (Q)AXB(R) grammar and subsequently rated old, novel and ungrammatical strings. Participants were trained in one of two conditions: a control condition consisting of a replication of experiment 1 in Reeder et al (2013) with meaningless pseudowords, or a 'semantic competition' condition in which the same stimuli were mapped to real world referents presented synchronously by line drawn images. In order to assess the type of knowledge generated by the training phase, all participants completed subjective measures of awareness in the form of confidence ratings and source attributions after each grammaticality rating, which were complimented by retrospective verbal reports. Findings are reported with a view to better

understanding the nature of incidental statistical learning and induction in a second language.

References:

- Bardovi-Harlig, K. (2013). The Interaction of Pedagogy and Natural Sequences in the Acquisition of Tense and Aspect. *Second Language Acquisition Theory and Pedagogy*, 151-168.
- Reeder, P. A., Newport, E. L., & Aslin, R. N. (2013). From shared contexts to syntactic categories: The role of distributional information in learning linguistic form-classes. *Cognitive psychology*, 66(1), 30-54.
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Agustina Carando, Laura Manoiloff, Cecilia Defago, Costanza Carando, and Monica Wagner (Graduate Center, City University of New York and Universidad Nacional de Córdoba): Understanding bilinguals' innovations through implicit learning⁽¹⁾

This study explores the hypothesis that implicit learning is an internal mechanism motivating processes of convergence in bilinguals. We focus on linguistic innovations in Spanish produced by Spanish-English bilinguals. Innovations involve both changes in the frequency of alternative constructions and existing patterns produced in new contexts modeled on English equivalents. From structural priming techniques that model convergence, the data assess the extent of English influence on Spanish, in a contact setting (New York, United States) and a non-contact setting (Córdoba, Argentina).

In the field of language contact, convergence may manifest itself as an increase in the use of native language patterns shared with the contact language. Another outcome of convergence is grammatical replication, where native language structures acquire a new context of use resembling the contact language (Heine & Kuteva, 2005). Structural priming (Bock, 1986) is the tendency for speakers to repeat previously processed structures. Cross-linguistic priming has been shown to increase the use of shared constructions (Schoonbaert et al., 2007); this investigation tests the applicability of priming to the study of grammatical replication.

Three experiments examine the voice, reciprocal, and dative alternations. First, a picture description task in Spanish and English establishes baseline frequencies: the voice and reciprocal alternations have a similar distribution in English and Spanish; the dative alternation, however, differs between the two languages. Second, a within-language priming task (Spanish-to-Spanish) confirms strong priming effects for all three alternations and yields extremely low rates of grammatical replication. Third, a cross-language priming task demonstrates that English primes Spanish and increases grammatical

¹ Based on Carando, A. (2015). The emergence of L1 innovations in Spanish-English bilinguals: Evidence from cross-linguistic structural priming. Doctoral dissertation, City University of New York."

replication rates, only with the alternations that have similar cross-linguistic distributions (voice, reciprocal). The priming effect did not differ between the contact and non-contact groups, but the bilinguals in the contact setting had higher grammatical replication rates.

The data support the view that structural priming could be a catalyst facilitating language change in bilingual communities. We argue that this process is better explained with priming as implicit learning (Loebell & Bock, 2003): we found that English primes encouraged patterns with novel subcategorizations for particular verbs. To the extent that implicit learning supports generalization, it allows for the possibility that the use of procedures for assembling patterns in one language would encourage the use of the same procedures in the other language, even when they are not traditionally associated with the grammatical context in question. The data also support models of contact as an accelerant of processes already in motion in the native language, rather than as a trigger for the creation of completely new patterns.

References:

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Francesca Citron (Lancaster University): Neuroscientific evidence for a role of figurative language in engaging our interlocutors

Neurolinguistic research has shown that the emotional content of verbal material affects comprehension of single words, sentences, as well as texts. This research mainly focused on literal language. However, figurative language may play an important role in conveying emotion. Recent neuroimaging evidence from our lab showed that conventional metaphors related to taste, e.g., *she looked at him sweetly* are more emotionally evocative than their literal counterparts, i.e., *she looked at him kindly*; specifically, the former elicited enhanced activation of the left amygdala, associated with processing of emotionally salient stimuli. In order to generalise this finding beyond the taste domain, we conducted a follow-up study using different types of metaphors, e.g., *she had a rough day; this is a heavy matter*. Preliminary results seem to confirm a stronger emotional engagement of readers when presented with the metaphorical formulation. In addition, novel imaging data on the comprehension of emotionally-laden idiomatic expressions, e.g., *she spilled the beans; he's in seventh heaven*, seem to further confirm and generalise our findings of enhanced

amygdala activation for figurative vs. literal expressions. Our current plan is to extend this research to proficient second language (L2) speakers, in order to test whether they show the same degree of engagement as native speakers do. We will discuss the present results and present a sketch of our future research programme on L2 speakers.

Rebecca Frost and Padraic Monaghan (Lancaster University): Sleep-driven computations in speech processing

One of the primary challenges facing language learners is identifying words and learning the grammatical rules that apply between these words. Past research into statistical learning has provided conflicting accounts regarding the separability of processing for these tasks. One possibility is that words are first identified and then relations between words are computed (Peña, Bonatti, Nespor & Mehler, 2002), meaning different processes may apply to these tasks. Alternatively, it may be the case that these tasks are resolved in combination during language learning; instead of distinct operations, the same type of learning process may apply to both word identification and grammar acquisition. A further alternative to signal-driven changes in computation is that learning specific instances and abstraction of structure can be supported by separation of these processes during sleep (Kumaran & McClelland, 2012). Sleep has a profound influence on abstraction and generalisation across a range of tasks (e.g. Fenn, Nusbaum & Margoliash, 2003), including the acquisition and generalisation of language structure (Nieuwenhuis, Folia, Forkstam, Jensen & Petersson, 2013; Gómez, Bootzin & Nadel, 2006). However, in these previous studies, segmentation and generalisation were not simultaneously required of the learner. In this study, we tested directly whether sleep-driven changes in computation could be observed for segmentation and generalisation tasks without changing the speech signal itself. We trained participants on an artificial language that comprised nonadjacent dependencies, then tested their ability to complete tasks of segmentation and generalisation 12- and 24- hours later. Our results show that sleep-related computations lead to improvements for both segmentation and generalisation, but have distinct signatures on learning: Findings indicate the possibility for an enduring benefit of sleep for segmentation, regardless of whether that sleep is immediate or delayed, however findings show a short-term benefit of immediate sleep for generalisation. Such a pattern of results is consistent with a view of word learning and grammar learning as distinct declarative and procedural tasks (Ullman, 2004), which are underwritten by different sleep-based mechanisms.

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Ali H. Al-Hoorie (University of Nottingham): Implicit attitudes toward L2 native Speakers

Since Gardner and Lambert's (1959) seminal study, second language (L2) motivation has always been construed as an explicit, deliberative process that can be measured to a satisfactory extent by self-report questionnaires (e.g., Dörnyei & Ushioda, 2011; Gardner, 2010). In contrast, implicit attitudes and motivation have received no systematic attention to date. This paper presents empirical results supporting the significance of implicit attitudes and demonstrating how to measure them.

Arabic L1 adults and young adults ($N = 365$) completed the Implicit Association Test (Greenwald et al., 1998) that examined their implicit attitudes toward L2 native speakers, as well as a self-report questionnaire that examined their explicit attitudes. The results showed that 1) explicit–implicit congruence was associated with stronger affiliation with L2 speakers, 2) learners with negative implicit attitudes were too heterogeneous to be considered a single group, and 3) implicit attitudes moderated the relationship between (explicit) attitudes toward L2 speakers and the ideal L2 self.

The paper concludes by arguing that implicit attitudes constitute a second dimension to L2 motivation in addition to the explicit dimension: Learners might score highly on both, either, or none; and each of these possibilities may have a differential effect on L2 learning.

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Hyeonjeong Jeong (Tohoku University), Rod Ellis (University of Auckland), Wataru Suzuki (Miyagi University of Education) and Ryuta Kawashima (Tohoku University): Brain mechanisms of implicit and explicit linguistic knowledge and the effect of language proficiency

Many second language (L2) acquisition researchers generally agree with (a) that explicit/ declarative knowledge and implicit/ procedural knowledge L2 learners possess are distinct, and (b) that explicit knowledge helps learners acquire implicit knowledge over time (see Ellis et al., 2009). Many L2 studies using accuracy and reaction time have also shown that the linguistic knowledge L2 learners have may be sensitive to the type of task. However, little is known about the neural mechanisms of two types of L2 knowledge and how such knowledge develops in the brain as L2 proficiency increases. In this fMRI study, we attempted to examine the neural correlates of explicit/ declarative and implicit/procedural knowledge according to task type and the effect of language proficiency by comparing non-native speakers (NNS) and native speakers (NS) of English.

Subjects were 30 healthy right-handed NNSs (mean age = 22 years) and 27 NSs (mean age = 28 years). Subjects were asked to perform a Truth Value Judgment Test (TV) which required subjects to indicate whether the statements were factually true or not and a Grammaticality Judgment Test (GJ) which required subjects to judge the grammaticality of sentences. Both sets of sentences contained grammatical and ungrammatical sentences which were counter-balanced across tasks and participants. Two separate sessions divided by task were conducted for each group in an event-related self-paced paradigm. Only correct responses were analyzed for the imaging data with SPM8 (random effects model, corrected at $p < 0.05$).

Irrespective of task type, the NSs processed the ungrammatical sentences mainly in the left inferior frontal gyrus (LIFG). In contrast, the NNS displayed differential activation patterns between task types. Correlation analyses revealed that the higher the activation in the LIFG, the greater the proficiency of the NNS while processing the ungrammatical sentences during the TV task. In the GJ task, however, greater involvement in the parahippocampal gyrus was found as L2 proficiency increased. The parahippocampal cortex is well known as one of the declarative memory systems (Gabrieli & Kao, 2007). These results indicate that the NSs processed grammaticality mainly in the LIFG, irrespective of task type, but the NNSs drew on different knowledge sources depending on whether they were focused on meaning as in the TV or on form as in the GJ and their L2 proficiency level.

Matthew Jones and Gabriella Vigliocco (University College London): Cross-situational learning? An implicit learning study of sound-shape iconicity

Speakers of disparate languages, ages, and cultural backgrounds share intuitions about certain classes of speech sound fitting certain classes of shape (see Perniss, Thompson, & Vigliocco, 2010 for a review). In the classic

demonstration, participants are given two names (kiki and bouba), and two shapes (one rounded, one spiky), and asked to pair each name with one shape. Bouba is usually paired with the rounded shape, kiki with the spiky shape (Ramachandran & Hubbard, 2001). More generally, it has been argued that back vowels and voiced consonants are associated with rounded shapes, front vowels and unvoiced consonants with spiky shapes (ibid.). This is a particular instance of a wider phenomenon – iconicity, i.e. transparent, non-arbitrary relationships between form and meaning. We used an implicit learning paradigm (cross-situational learning - Yu & Smith, 2007) to investigate whether iconically matching ('congruent') mappings are easier to learn than non-matching ('incongruent') mappings.

The experiment closely followed Monaghan, Mattock, & Walker (2012). Each participant learned names for 16 shapes: eight round and eight spiky. Half the shapes in each category were given round-sounding names, half spiky-sounding names. Thus half the shapes in each category received congruent names, half incongruent names. We departed from Monaghan et al. by generating names via syllables normed for iconicity rather than by manipulating the phonetic contrasts argued to underlie the effect. Each trial comprised two shapes on screen (left and right), and auditory presentation of one name. The name belonged to one shape - participants had to indicate which. Trials were blocked in four groups of 64. In keeping with Monaghan et al. we found that accuracy showed a main effect of block (i.e. participants learned), and a main effect of congruence (i.e. participants performed better on trials featuring congruently named shapes). However, in contrast to Monaghan et al., we found no interaction between congruence and block (perhaps because of differences in our name stimuli); congruence was an advantage from the outset. Thus while Monaghan et al. argue that iconic congruence facilitates the learning of mappings between name and category of shape, our results suggest that at least part of the congruence advantage may not be attributable to form-meaning mappings built up over previous trials. Instead it arises from biases towards pairing certain sounds with certain shapes, biases that are expressed from the very first exposure to the stimuli (like in the kiki-bouba experiment). In summary, these results not only support the robustness of sensitivity to sound-shape iconicity, but also raise wider questions about when effects in paradigms like cross-situational learning can be interpreted as learning.

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Audrey L. M. Rouse-Malpat (University of Groningen): Explicit or implicit teaching: a longitudinal classroom study

Most studies to date conclude that explicit teaching is more effective than implicit teaching (Norris & Ortega, 2000). These studies generally report on well-controlled experiments in a lab-setting, usually involving tasks eliciting grammatical knowledge (Ziemer Andrews, 2007). Recently, studies have introduced less biased forms of testing by including free written response tasks (Andringa et al., 2011).

In our study, we investigate the effectiveness of explicit vs. implicit teaching on general proficiency longitudinally in an ecologically-valid classroom setting by testing our participants with free-written assignments. Our goal is to answer the following research questions: is explicit teaching more effective than implicit teaching on the development of general written proficiency? In addition, what other factors besides teaching method affect the learning process ?

To do so, we have compared two groups of Dutch high school students (N=305) learning French as a second language over the course of the first two school years. Group 1 was taught with an explicit method called Grandes Lignes and group 2 was taught with an implicit method called AIM. The latter was introduced in 2007 in some Dutch high schools to increase the proficiency level and the motivation of students. The underlying idea was that students would be more involved with the language if less time was spent on the explanation of grammatical rules and more time was spent on the actual use of the language. The development of their written proficiency was tested by using free-production tasks. Students were asked to write a text of 150 words on a topic within 20 minutes every 8 weeks. The assignments were then holistically rated on general proficiency according to a set of criteria developed for beginning levels of language learning based on the method used in the OTTO project (Verspoor, Schmid & Xu 2012). Participants and teachers were also asked to fill in a questionnaire on their attitude and motivation.

Results show that the implicitly taught group generally outperformed the explicitly taught group on written proficiency. However, variation among the classes within the groups suggest that the method is not the only factor accounting for these results. Further investigations on attitude and motivation should give a better idea of the role of the method, and teacher and student motivation.

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**Anna Samara and Elizabeth Wonnacott (University College London):
Statistical learning of novel graphotactic constraints in children and adults**

It has been suggested that children's spellings reflect various statistical properties of their orthography (Kessler, 2009). For example, young spellers sometimes rely on untaught graphotactic conventions for permissible letter positions (e.g., *ck* is illegal as an onset), as well as constraints on permissible letter contexts (e.g., consonantal coda spellings are more likely to be doubled when preceded by single-vowel spellings, e.g., *Jeff*, than double-vowel spellings, e.g., *deaf*). This study examined the learning process underlying sensitivity to both patterns. We hypothesised that (a) graphotactic learning can arise rapidly without explicit instruction, and that (b) such rapid learning can be induced among children as well as adults. We used a two-phase experiment to induce novel graphotactic learning in 137 typically developing children (mean age = 7.5) and 113 adults. We manipulated two factors in a between-subjects design: (a) *type of constraint (positional constraints variant: e.g., d can only appear in word beginnings; contextual constraints variant: e.g., d is only followed by o); and (b) exposure duration (short exposure variant: 9 repetitions/item; long exposure variant: 18 repetitions/item)*. Results confirmed that novel letter positions and contexts were reliably learnt by children and adults. Adults were, by and large, superior learners. In both groups, the effect size was much larger for learning constraints on letter positions than letter contexts, suggesting that incidental learning is moderated by the complexity of the orthographic pattern being learned. Exposure duration did not affect learning performance. Our findings demonstrate that statistical information governing aspects of correct spelling can be learnt under incidental conditions and are consistent with the statistical learning perspective in spelling development (Pollo et al., 2008). Ongoing studies in our lab explore whether 7.5-year-olds can learn novel contextual constraints more efficiently following training over 2 consecutive days (as per previous learning studies, e.g., Wonnacott, 2011). We also investigate children's sensitivity to CV (body) vs. VC (rime) patterns in a between-subjects design. Are learners more sensitive to grapheme co-occurrences between vowels and final consonants in support of the view that rime units play a special role in English spelling (Kessler & Treiman, 1997)?

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**Hannelore Simoens and Alex Housen (Vrije Universiteit Brussel):
Implicit and explicit learning of inflectional morphology in a second language: A cognitive perspective.**

There is much evidence that inflectional morphology is difficult to acquire (Godfroid & Uggen, 2013; Marsden et al., 2013; Williams, 2005), but it is far less apparent what this difficulty entails (DeKeyser, 2005; Ellis, 2006). In particular, it is still unclear how complexity differentials of the L2 input interact with learning conditions in determining L2 difficulty. The research reported on in this poster addresses the interplay between these constructs, in the belief that a fuller understanding of what makes L2 inflectional morphology more or less difficult requires a cognitive perspective on the matter. Accordingly, we define L2 difficulty in cognitive terms as the mental resources L2 learners have to allocate and the cognitive mechanisms they have to employ in processing and learning L2 features (Bulté & Housen, 2012).

The complexity of the inflectional morphemes is operationalised in terms of their salience in the input. Salience itself is seen as a function of perceptual (physical substance), structural (allomorphy and homophony) and experiential (frequency, L1/L2 contrast) factors (cf. DeKeyser, 2005; Ellis, 2006; Goldschneider & DeKeyser, 2001; VanPatten, 2007). Based upon this salience construct, artificial inflectional suffixes of varying types and degrees of salience were designed and combined with familiar existing English stems (e.g., *hotelolp* 'his hotel') in a reading task presented to 25 L2 learners (adult L1 speakers of Dutch) under three different learning conditions: an incidental, implicit form-focused and explicit form-focused condition.

During the reading task, the learners' gaze durations and pupil dilations were recorded online by an eye tracker to gauge the difficulty of processing the target morphemes, whereby gaze duration is believed to tap into the quantity (duration) of processing and pupil dilation into the quality (depth) of processing of the target feature (cf. Just & Carpenter, 1993; Papesh & Goldinger, 2010; Schotter & Rayner, 2012). After the reading task, the learners performed four posttests aimed to evaluate the difficulty of learning the target morphemes in terms of implicit and explicit knowledge, i.e. an elicited imitation, a grammaticality judgement, a gap-fill and a metalinguistic knowledge test.

Preliminary results showed that the L2 learners were sensitive to both form and meaning of the target suffixes after brief exposure but that this sensitivity was strongly mediated by the type and degree of salience of the L2 morpheme and by the type of learning condition. The findings thus reveal an intricate interplay between the linguistic input and the learning conditions in determining what makes implicit and explicit learning and processing of inflectional morphology in a second language difficult.

Justyna Sobczak and Gareth Gaskell (University of York): Comparing training procedures in novel word learning: Implicit versus explicit training tasks

Research suggests that new words can be acquired through different learning mechanisms. However, it is not clear whether these mechanisms produce the same learning effect. We compared implicit and explicit means of novel word learning using two different training paradigms. In the implicit condition we used the Hebb repetition task, a serial recall task with repeated sequences that has been found to result in long-term learning (Szmalec et al., 2012). In the explicit condition we used exposure through the phoneme monitoring task to ensure reliable learning (Gaskell & Dumay, 2003).

Two versions of the Hebb repetition task were used to test learning and lexical integration of novel words. To-be-remembered items were presented as three three-syllable groupings in sequences, with Hebb lists repeated every third trial, separated by two unrepeated filler lists. In the first version, all nine syllables in a sequence were presented at a steady rate. In the second, there were longer gaps between three-syllable groupings. Additionally, we manipulated the explicitness of information provided to the participants before training: only the phoneme monitoring group was told about the purpose of the training (novel word learning).

Explicit or implicit training took place in the morning. All participants completed 2AFC recognition and free recall tests for the trained novel words after a 24 hour delay. The lexical integration of items via the Hebb repetition task was tested using a pause detection task, in which delayed responses indicate item integration (Mattys & Clark, 2002). Participants were tested immediately after training, and re-tested after 12 and 24 hours to examine the effects of delays with and without sleep.

Tests of recognition and recall 24 hours after exposure showed that both of the Hebb repetition groups had learnt novel items at a level significantly lower than the phoneme monitoring group. Including longer gaps between the syllable groupings led to higher recognition scores and better recall, however the performance was still significantly lower than in the explicit learning group. Additionally, neither of the Hebb repetition tasks induced inhibitory effects in pause detection immediately after exposure, after 12 hours of wakefulness, or after a 24-hour interval including a night's sleep. This is in contrast to recent findings on the Hebb repetition task (Szmalec, et al., 2012).

These findings suggest that, while recognition and recall performance after Hebb learning was improved with temporal grouping of the sequences, this form of implicit learning was still inferior to explicit learning via the phoneme monitoring task. We also did not find any evidence that Hebb repetition helps to integrate words after delays with or without sleep.

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Laura Vilkaite (University of Nottingham): Raise cash and Raise a lot of cash: How do native speakers read non-adjacent collocations?

Collocations have been defined in corpus linguistics as words co-occurring together more frequently than predicted by chance (Biber, Johansson, Leech, Conrad, & Finegan, 1999). So far a number of studies have investigated psychological reality of collocations. Many of them have used lexical decision tasks and showed that collocations have a certain processing advantage when compared to novel language both for native speakers and for language learners (e.g. (Durrant & Doherty, 2010; Siyanova & Schmitt, 2008; Wolter & Gyllstad, 2011). More recently eye-tracking technique corroborated these findings by replicating the result that frequent adjective-noun collocations have processing advantage, even if it was noticeable only in early measures of eye-movements (Sonbul, 2014). To date all these studies have looked at only processing of adjacent collocations.

However, in corpus linguistics collocations are usually defined as words co-occurring within a certain span (usually ± 4) of words. Thus the collocations derived from corpus analysis are often not the kind that have been shown to offer processing advantages (i.e. adjacent). The present study addresses this limitation by investigating processing of both adjacent and non-adjacent verb-noun collocations to see if processing advantages extend to both.

28 native speakers of English read a list of sentences for comprehension and their eye-movements were recorded. The sentences contained phrases in one of the four conditions: adjacent collocations (*receive treatment*), controls (*arrange treatment*), non-adjacent collocations (*receive any form of treatment*) and non-adjacent controls (*arrange any form of treatment*). Reading times of the final words in each condition as well as reading times for the entire phrases were compared. A number of eye-tracking measures were analysed using mixed effects modelling to investigate the effects of collocation adjacency, strength and frequency on collocation processing speed.

The results of the study show that both adjacent and non-adjacent collocations have processing advantage over the control phrases at least in the late measures of eye-movements. This suggests that the connections between the collocates are strong enough not to be affected by the intervening words. This also indicates that collocations extracted by corpus techniques using a span window (e.g. ± 4) seem to be psycholinguistically real.

Johanna de Vos, Kristin Lemhöfer and Herbert Schriefers (Donders Centre for Cognition, Radboud University Nijmegen): Implicit L2 vocabulary learning in dialogue: High immediate uptake and retention

Many people nowadays spend one or more periods of their adult lives immersed in a second-language (L2) environment. While their L2 acquisition often starts off in a tutored environment, after this initial period of explicit language learning the learning process typically continues through natural interactions with a bigger role for implicit learning. Relatively little is known about this second phase in the L2 acquisition process, possibly because of the challenges associated with balancing naturalness of conversation on the one hand and experimental control on the other. Inspired by Branigan et al.'s (2000) confederate-scripting-technique (which so far has mainly been employed in L1 dialogue situations), this poster presents a novel method for investigating implicit L2 vocabulary learning and some preliminary findings.

German students studying in a Dutch language environment were invited to participate in a study ostensibly about making price judgements. A pre-test disguised as a price sorting task showed the experimenter which object names were known and unknown to each participant, allowing an individualised selection of words to be learnt. In the main experiment the participant and the experimenter took turns comparing two objects in price. Exactly 24 previously unknown objects (six per block, among fillers), were always named and compared by the experimenter first, but would at a later point appear in the participant's trials, requiring an output of that object's name. This showed whether or not the word had been learnt. Because of the refined cover story, participants were completely naive with regard to taking part in a vocabulary learning study.

The study was intended to investigate whether vocabulary acquisition takes place at all under these implicit circumstances, and whether acquisition rates are sensitive to three factors that are commonly known to affect memory performance under explicit learning conditions. These factors, and their expected effects, were:

1. Cognate status: cognates > non-cognates?
2. Number of exposures: four > two?
3. Retention interval: short (3 intervening trials) > long (7 intervening trials)?

A preliminary look at the data (n = 24) reveals that new words are indeed learnt under the described implicit circumstances. Across all conditions, about sixty percent of previously unknown words were acquired correctly, and another ten percent partially. Post-test performance (30 minutes later) had declined relative to immediately after learning; however, around 45 percent of words were still remembered correctly, and twenty percent partially.

Furthermore, the data suggest that all factors exert the expected influence, with the largest effects for cognate status, i.e. cognates (e.g. *schort* – *Schürze*; English *apron*) were learnt better than non-cognates. These results show that vocabulary acquisition in conversation can take place at surprisingly high rates. Thus, this provides us with a method to study implicit vocabulary learning during dialogue that is sensitive to the factors that would be most expected to affect memory performance.

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Xin Wang and Juan Wang (University of Oxford): The time course of tonal activation in bilingual lexical access: Evidence from Chinese-English bilinguals in visual world paradigm

Our study attempts to understand the mechanism of bilingual lexical access in Spoken Word Recognition. This current study employs the Visual World Paradigm to investigate whether both languages are activated when bilinguals are exclusively processing one of their languages (i.e., English as the target language) and the time course of tonal activation if the non-target language (e.g., Chinese) is activated. In the visual world paradigm, we instructed the Chinese-English bilinguals to pick one of the 4 presented objects/pictures based on the matched auditory stimuli in English. The critical stimuli are interlingual homophones (IH) so that English target words sound similar to Chinese words (e.g., English target word ‘bay’ sounds similar to Chinese ‘bei’ tone 1, meaning *cup*). The critical conditions are manipulated through competitors that phonologically overlap with the target words (e.g., Chinese ‘bei’ tone 1 overlaps with ‘bay’ at the segmental level, Chinese ‘bei’ tone 4 overlaps with ‘bay’ at both segmental and supra-segmental level). Therefore, 5 different conditions were encoded in the VWP experiment, for example:

Target	Competitors	Conditions
bay	‘bei’ tone1 (cup)	Segmental
	‘bei’ tone4 (quilt)	Segmental + tone
	‘fei’ tone4 (fee)	Rhyme + tone
	‘tu’ tone4 (rabbit)	Tonal
	‘yu’ tone2 (fish)	Baseline

This design allows us to investigate whether the non-target language (Chinese) can be triggered when the linguistic stimuli were exclusively in the

target language (English), and the role of lexical tone in bilingual language processing. The dependent measures are reaction times and eye fixations. Our preliminary results show strong effects in the conditions where segmental information overlaps between competitors and targets. That is, 'Segmental', 'Segmental+tone', and 'Rhyme+tone' conditions significantly affect the time course of eye fixations on the targets. In other words, Chinese words are activated through IH. There is no effect on the 'Tonal' condition, suggesting lexical tone itself won't activate Chinese words. In particular, the 'segmental+tone' condition demonstrated the strongest effect across the conditions, suggesting that lexical tone is critical in bilingual lexical access. These results support interactive bilingual lexical models in Spoken Word Recognition for bilinguals.

Abdalkarim Zawawi (Lancaster University): Syntactic priming in L2 spoken interaction: the case of dative alternation and particle placement

The present study uses corpus-linguistic methods to compare L1 with L2 speakers' syntactic priming of the dative alternation and the verb-particle constructions in task-based conversation. Syntactic priming is a cognitive and social well documented phenomenon in language users' written and spoken production (Ferreira, 2003). Following exposure to a given language form, language users tend to implicitly repeat the same or a related form in a subsequent language production (Branigan, 1995, p. 940). The lexical shared items between a prime and a target are also believed to strengthen the syntactic priming effect; a phenomenon referred to as lexical boost (Pickering & Ferreira, 2008, p. 437). Early investigations made use of experimental tasks in a lab context and found evidence for syntactic priming. For example, using picture description, or sentence completion tasks, L1 speakers were primed by alternating language forms, e.g. the dative construction, the passive voice (Bock, 1986; Pickering & Branigan, 1999). Later studies in the L2 context confirm the implicit activation and therefore reproduction of syntactic structures that L2 learners were primed by (e.g., McDonough, 2006). Corpus methods have recently come to the scene in priming L1 research (Gries, 2011). The corpus studies have also found robust syntactic priming of various alternating constructions. Very little priming research; however, has been done on L2 spoken data. This study makes use of corpus methods, combined with extensive manual analysis to investigate two controversial questions in syntactic priming research, i.e. the maximum distance at which priming can be identified, and the role of lexical boost in maximising the syntactic priming effect. The data I use contains transcripts of L2-L2 and L1-L1 conversations, extracted from the GLBCC spoken corpus with a size of 121128 words. The initial results indicate an even more robust priming effect in the case of particle placement in the learner data than in the native data. However, the analysis of the dative construction shows a greater priming effect in the native data than in the learner conversations.

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Tineke Brunfaut	Lancaster University (Linguistics)
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Francesca Citron	Lancaster University (Psychology)
Zoltan Dienes	University of Sussex
Rebecca Frost	Lancaster University (Psychology, LUCiD)
Dana Gablasova	Lancaster University (CASS)
Elena Geangu	Lancaster University (Psychology)
Aline Godfroid	Michigan State University
Luke Harding	Lancaster University (Linguistics)
Calum Hartley	Lancaster University (Psychology)
Jelena Horvatic	University of York
Alex Housen	Vrije Universiteit Brussel
Jennifer Hughes	Lancaster University (CASS)
Iain Jackson	University of Manchester
Matthew Jones	University College London
Christian Kliesch	Lancaster University (Psychology)
Pei Liu	Lancaster University (Psychology)
Emma Marsden	University of York
Marije Michel	Lancaster University (Linguistics)
Padraic Monaghan	Lancaster University (Psychology, LUCiD)
Kara Morgan-Short	University of Illinois at Chicago
Elpis Pavlidou	University of Edinburgh / Haskins Laboratories
Jenefer Philp	Lancaster University (Linguistics)
Diana Pili-Moss	Lancaster University (Linguistics)
Tamara Rakic	Lancaster University (Psychology)
Patrick Rebuschat	Lancaster University (Linguistics)

LIST OF DELEGATES (continued)

Andrea Revesz	UCL Institute of Education
Karen Roehr-Brackin	University of Essex
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Laura de Ruiter	University of Manchester
Simon Ruiz	University of Tübingen
Anchana Rukthong	Lancaster University (Linguistics)
Anna Samara	University College London
Christine Schoetensack	Lancaster University (Linguistics)
Hannelore Simoens	Vrije Universiteit Brussel
Louah Sirri	Lancaster University (Psychology)
Bryan Smith	Arizona State University
Justyna Sobczak	University of York
Harriet Stone	Lancaster University (Linguistics)
Wataru Suzuki	Miyagi University of Education
Marta Szreder	University of Manchester
Virve Vihman	University of Manchester
Laura Vilkaite	University of Nottingham
Johanna de Vos	Radboud University Nijmegen
Neil Walker	Lancaster University (Linguistics)
Pucheng Wang	Lancaster University (Linguistics)
Xin Wang	University of Oxford
John Williams	University of Cambridge
Thomas Wilcockson	Lancaster University (Psychology)
Elizabeth Wonnacott	University College London
Mengling Xu	University of Leeds
Abdalkarim Zawawi	Lancaster University (Linguistics)