Linguistics
Conference on Language Development

BUCLD 44 Schedule and Abstracts

THE 44TH BOSTON UNIVERSITY CONFERENCE ON LANGUAGE DEVELOPMENT

NOVEMBER 7–10, 2019
GEORGE SHERMAN UNION, BOSTON UNIVERSITY

Registration opens at 8:00am each day starting on Friday.

Please note that this year's Student Workshop will be held on Thursday, November 7th following the Society for Language Development Symposium at 6:30pm, with refreshments available starting at 6.

Fri | Sat | Sun | Alternates | Fri posters | Sat posters

Thursday, November 7, 2019

STUDENT WORKSHOP (East Balcony)

6:30 – 7:30

Careers in the Field of Communication Sciences and Disorders*: Why and How
*also known as Speech, Language, and Hearing Sciences.
Sudha Arunachalam (New York University)

Abstract(s) for presentation(s) above

Careers in the Field of Communication Sciences and Disorders*: Why and How
***also known as Speech, Language, and Hearing Sciences**

Sudha Arunachalam (New York University)

The field of communication disorders (sometimes called CSD; Speech, Language, and Hearing Sciences; or clinical linguistics) is an interdisciplinary field that draws from linguistics, psychology, and neuroscience, as well as clinical approaches to language and communication disorders (speech-language pathology). Many of you probably already have research programs or research interests that would fit well in this field. In this session, we'll talk about how your research might fit into such a department and about the academic career path. We'll also talk about how to position yourself to be competitive on this track, considering all ranks from those just planning to go to graduate school through to postdocs currently on the job market.

[Back to top]

Friday, November 8, 2019

9:00 – 5:00

BOOK EXHIBIT (Ziskind Lounge)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	9:00	
The development of gendered speech in children: patterns and predictors. *B. Munson, N. Lackas, K. Koeppe*	Young Children Build Syntactic Predictions During Language Processing and Use Them to Learn Novel-Word Meanings. *N. Havron, A. Fiévet, M. Babineau, A. de Carvalho, A. Christophe*	Bayesian analysis as alternative to Frequentist methods: A demonstration with data from language-impaired children's relative clause processing. *Y. Haendler, R. Lassotta, A. Adelt, N. Stadie, F. Burchert, F. Adani*
	9:30	
Factors influencing infant volubility and turn-taking in bilingual infants. *K. Xu, A. Orena, Y. Ruan, L. Polka*	Neural synchrony predicts novel word learning from storybooks. *E. Piazza, A. Cohen, C. Lew-Williams*	The acquisition of prosodic focus-identification: The role of variation in focus-marking. *B. Surányi, L. Pintér*
	10:00	
Acquisition of phonological variation: Evidence from artificial language learning. *B. Sneller, E. Newport*	The effect of code switching on word learning in bilingual 5-year-olds. *M. Brouillard, D. Dubé, K. Byers-Heinlein*	The emergence of (reduced and full) clefts in French L1. *K. Lahousse, M. Jourdain*

Abstract(s) for presentation(s) above

The development of gendered speech in children: patterns and predictors

B. Munson, N. Lackas, K. Koeppe

Naive listeners rate boys' and girls' speech to sound different, with boys' speech resembling adult men and girls' speech resembling adult women. This is true even when the content of the speech conveys nothing about gender. These differences are found prior to puberty, when boys' and girls' vocal tracts are not yet sexually dimorphic. This suggests that children learn gendered ways of speaking by selectively attending to and emulating specific models in the ambient language. We examined individual differences in gendered speech longitudinally in 80 children (40 boys, 40 girls) at two time-points: 28-39 months old and 54-66 months old. At both time points, naive listeners rated boys and girls significantly differently on a scale from 'definitely a boy' to 'definitely a girl'. A larger difference was found at the later time-point. This interaction was due entirely to changes in ratings of boys' voices over the two time points.

Young Children Build Syntactic Predictions During Language Processing and Use Them to Learn Novel-Word Meanings

N. Havron, A. Fiévet, M. Babineau, A. de Carvalho, A. Christophe

We investigated whether children flexibly change their predictions in two eye-tracking studies with 3-4-year-old French-speaking children. Studies used the syntactic context "la petite", which can introduce either a noun, (la petite grenouille, "the little frog"); or a verb (la petite dort, "the little one is sleeping"). In an induction phase, children heard sentences where la petite was followed by familiar nouns, or sentences where la petite was followed by verbs.
At test in Study 1 children heard ambiguous sentences containing noun/verb homophones. (e.g., la petite ferme can be interpreted either as "the little farm" or "the little one is closing"). Children from the verb condition looked longer at images depicting the verbs than children from the noun condition. In Study 2 we presented novel words at test. Verb-condition children looked longer at the novel actions than noun-condition children. Results reveal children's adaptation to their linguistic environment is fast and accurate.

Bayesian analysis as alternative to Frequentist methods: A demonstration with data from language-impaired children's relative clause processing

Y. Haendler, R. Lassotta, A. Adelt, N. Stadie, F. Burchert, F. Adani

Language researchers have long used Frequentist analysis (FA) methods, where an effect is considered significant when its p-value is smaller than 0.05. FA only allows indirect inference on the null hypothesis. It risks misinterpretation of p-values, especially with small samples, and model fitting is not always flexible. In Bayesian analyses (BA), inference concerns the tested hypothesis, not the null. There is no risk of p-value misinterpretation and model fitting is flexible. Particularly, it allows the integration of previous results used as prior knowledge concerning the data. We compare FA and BA using eye-tracking data on relative clause processing by children with Developmental Language Disorder and controls. Based on this demonstration, we conclude that estimating Bayesian posterior distributions emerges as a powerful alternative to FA. Implemented with priors derived from previous data and having greater structural flexibility, BA allows more reasonable statistical inference, and should be preferred especially with small samples.

Factors influencing infant volubility and turn-taking in bilingual infants

K. Xu, A. Orena, Y. Ruan, L. Polka

Parent-child interactions play an important role in infant volubility, which is an important indication of language development. To date, little is known about the factors that influence volubility in bilingual infants. Here, we examined the factors that influence infant volubility and turn-taking in 10-month-old bilingual infants (n=21). We collected naturalistic daylong recordings from these infants using the Language Environment Analysis (LENA) recording system. Our analyses show that infant volubility and turn-taking is influenced by the amount and form of input they experience. At 10 months, bilingual infants vocalized in non-social contexts but are more vocal in one-on-one social contexts, especially in interactions with their mother and in their dominant language. Language mixing in one-on-one contexts also appears to be negatively correlated with infant volubility. These novel findings will inform our understanding of how parent-infant interactions shape the language development of infants being raised in bilingual families.

Neural synchrony predicts novel word learning from storybooks

E. Piazza, A. Cohen, C. Lew-Williams

Early learning requires interaction with caregivers, and joint book reading is a particularly effective context for socially guided language acquisition. Previous work using fMRI in adults has shown that neural coupling, or inter-subject temporal correlation (ISC), between speakers and listeners reflects the quality of communication, but very little is known about the neural mechanisms of real-time, face-to-face language learning in children. Here we used dual-brain fNIRS to simultaneously record from adult-child dyads while they read a story containing novel words. We found that learning was significantly correlated with time-locked ISC across children, a measure of engagement with the story structure. This investigation represents an important step toward understanding how teaching agents help children's brains to extract structure from everyday learning materials, such as storybooks.

The acquisition of prosodic focus-identification: The role of variation in focus-marking

B. Surányi, L. Pintér

A central yet understudied question in the acquisition of prosodic focus-marking (PFM) in comprehension is whether and how it is affected by cross-linguistic variation in the grammar of focus. In this experimental study we investigate Hungarian, a language in which focus is mandatorily marked by word order. We predicted that the comprehension of PFM in 4-to-6-year-olds would be delayed in comparison to the languages investigated so far, in which syntactic focus-marking—when available—is only an option. Adapting a comprehension task that had been developed to test PFM, we show that this prediction is borne out. This suggests that the developmental trajectory of the comprehension of PFM is affected by the prevalence of other focus-marking strategies in the given language. Our conclusion converges with recent findings suggesting that children's production of PFM is affected by the relative functional load of prosody and word order in the language they acquire.

Acquisition of phonological variation: Evidence from artificial language learning

B. Sneller, E. Newport

When faced with inconsistent input, children are found to be master "generalizers" (Kerswill 2003, Sengthas & Coppola 2001, Singleton & Newport 2004). However, natural languages also contain meaningful variation, which a speaker must also acquire in order to be a sociolinguistically competent speaker. Some studies within sociolinguistics suggest children acquire phonological variation at fairly young ages, while others suggest that variation requires additional age or exposure (Smith, Durham & Fortune 2007, Miller 2013, Hendricks, Miller & Jackson 2018).

Here we present an artificial language study designed to test the role of age and linguistic conditioning in the acquisition of phonological variation. We find the youngest children regularizing across all conditions, while older children begin to exhibit the conditioning given in the input. Our findings suggest that variable phonology may not be acquired in the earliest stages of acquisition but that age plays an important role in the acquisition of variation.

The effect of code switching on word learning in bilingual 5-year-olds

M. Brouillard, D. Dubé, K. Byers-Heinlein

Most bilingual parents report regularly code switching—alternating between languages—when speaking to their child (Byers-Heinlein, 2013). Greater frequency of code switching predicts smaller vocabularies and slower word recognition in toddlers (Byers-Heinlein et al., 2017; Potter et al., 2019), raising the possibility that code switching could impair children's word-learning processes (Byers-Heinlein, 2013)—a hypothesis we tested in this study. We taught French-English bilingual 5-year-olds (n = 67) novel words in both of their languages via a shared storybook reading task, manipulating code switching frequency. We predicted that children would learn more words in the single-switch condition (1 switch) than in the frequent-switch condition (31 switches). Surprisingly, children showed strong and equal learning regardless of the frequency of code switching. These results demonstrate that bilingual children are adept word learners even when they encounter code switching, and that young bilinguals are flexible in acquiring vocabulary in a variety of bilingual contexts.

The emergence of (reduced and full) clefts in French L1

K. Lahousse, M. Jourdain

The aim of the present study is to provide a developmental analysis of clefts in L1 French. We show that, despite object clefts being less frequent than subject clefts, they appear at age 2. It follows that there is no Relativized Minimality effect in object clefts produced by children (Friedmann et al. 2009). Very young children perform complex syntactic operations (see Haegeman et al. 2013) on the clefted element, such as wh-movement (6) and Clitic Left Dislocation (7). This indicates (i) that the clefted element is not in the left periphery, but in a low, clause-internal position (as shown for adults by Haegeman et al. 2014; Belletti 2013) and (ii) that the left periphery is acquired at the same time as the rest of the clause (confirming Manetti & Belletti 2017/2018). We also show that children's early clefts exhibit adult-like information structure properties from the beginning.

10:30 – 11:00

BREAK (Ziskind Lounge)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	11:00	
The Impact of Bilingualism on Theory of Mind and Executive Functions in Children with Typical Development and with Autism Spectrum Disorders. *E. Baldimtsi, E. Peristeri, I. Tsimpli, S. Durrlemann*	Are infants sensitive to informant reliability in word learning?. *A. Tripp, N. Feldman, W. Idsardi*	Tamil-speaking children do not prefer iconic adverbial sentences over non-iconic ones. *L. de Ruiter, V. Priyadharshini, A. Etz, S. Kuppuraj*
	11:30	
Child cross-linguistic influence and adult L1 transfer: same or different?. *S. Berends, A. Hulk, J. Schaeffer, P. Sleeman*	The development of pragmatic reasoning from multiple information sources. *M. Bohn, M. Tessler, M. Merrick, M. Frank*	Redundant morphological marking benefits child learners. *S. Tal, I. Arnon*
	12:00	
Parental Language, Functional Utterance Type, and Play Context Impact Children's Usage of an Endangered Ancestral Language. *C. Lowry, P. Yuksel, P. Brooks*	"It's in your box!" –– Personal pronoun comprehension in children with ASD. *H. Clancy, A. He, R. Luyster, S. Arunachalam*	Multiword units predict children's non-inversion errors in wh-question formation. *S. McCauley, C. Bannard, A. Theakston, M. Davis, T. Cameron-Faulkner, B. Ambridge*

Abstract(s) for presentation(s) above

The Impact of Bilingualism on Theory of Mind and Executive Functions in Children with Typical Development and with Autism Spectrum Disorders

E. Baldimtsi, E. Peristeri, I. Tsimpli, S. Durrlemann

This study investigated whether bilingualism boosts Theory of Mind (ToM) and executive functions (EF) in ASD, and the links between ToM and EF in bilingual children. Thirty-four bilingual children with ASD (Mean age: 11; 7) were compared with age- and nonverbal intelligence-matched monolingual children with ASD, along with monolingual and bilingual TD controls. ToM was measured via an online, non-verbal false-belief task, attention-shifting via an online global-local attention task and working memory (WM) via a 2 digits-back task. Bilinguals with or without ASD were more accurate than monolinguals on WM, and ASD bilinguals were better than their monolingual peers both at shifting attention to the global level and ToM. Regression analyses revealed stronger relationships between EF and ToM in ASD bilinguals than ASD monolinguals, although these links did not emerge in TD. Bilingualism improves EF in children, including with ASD, and ASD bilinguals seem to capitalize on EF for ToM.

Are infants sensitive to informant reliability in word learning?

A. Tripp, N. Feldman, W. Idsardi

Infants are sensitive to epistemic trust, but models of infant word learning assume learners trust data from all informants equally. We model the Switch task, an audiovisual habituation procedure wherein infants are exposed to novel objects paired with labels and tested on these familiarized associations. Eighteen-month-olds outperform fourteen-month-olds on this task when the labels are minimal pairs (e.g. ""buk"" and ""puk""), but fourteen-month-olds' performance is improved by hearing habituation stimuli produced by multiple different talkers. Here we adapt a model to show that the benefit of multiple speakers could reflect aspects of infants' social cognition. Previous accounts attributed this improvement to the effect of acoustic variability on the infants' speech representations, whereas our account demonstrates that it can be predicted even when assuming that infants' phonetic perception is adult-like. Moreover, it suggests that learners may use inferences about epistemic trust during word learning earlier than previously supposed.

Tamil-speaking children do not prefer iconic adverbial sentences over non-iconic ones

L. de Ruiter, V. Priyadharshini, A. Etz, S. Kuppuraj

Five-year-old English- and German-speaking children process adverbial sentences more easily when these are in iconic order, that is, when the order of events in the sentence maps onto the order in the real world (e.g., He drives away fast before he shouts out loudly). It has been suggested that children expect language to map iconically. Using a forced-choice picture selection task, we tested if this iconicity preference is also present in Tamil-speaking five-year-olds. Tamil is typologically different from English and German and strongly prefers subordinate-main orders. For all four adverbials tested (pin 'after', mun 'before' and (n)al 'if/because'), Tamil-speaking children's performance was better with the highly frequent subordinate-main orders, even when the sentences were non-iconic. We conclude that the iconicity preference is not universal, but modulated by language-specific constraints. We also discuss individual differences among children.

Child cross-linguistic influence and adult L1 transfer: same or different?

S. Berends, A. Hulk, J. Schaeffer, P. Sleeman

This study reports the results of an experimental study on the acquisition of the Dutch quantitative pronoun (ER) by English-Dutch bilingual children, and compares these to a study on adult L2 Dutch speakers testing the same phenomenon (Berends, Schaeffer & Sleeman, 2017). A generalized linear mixed-effects logistic regression analysis shows that, despite similar scores on the proficiency task, the bilingual group's responses contain significantly fewer target responses than the monolingual children's responses. An error analysis reveals different types of non-target responses in both groups (full NP, ER-omission, doubling, irrelevant), and that ER-omission is significantly higher in the bilingual group. These results provide evidence for the Cross-linguistic Influence Hypothesis in child bilingualism and suggest a similar mechanism in both child bilingual and adult L2 acquisition (Berends et al. 2017): the lack of a quantitative pronoun in English negatively influences the acquisition of Dutch quantitative ER constructions.

The development of pragmatic reasoning from multiple information sources

M. Bohn, M. Tessler, M. Merrick, M. Frank

Language is learned in complex social settings. The messages that speakers convey go beyond the literal meanings of words, and listeners must reconstruct a speaker's meaning using pragmatic reasoning. During language acquisition, pragmatic reasoning can help children to learn the meaning of novel words. Yet, pragmatic inferences require integrating information about the current utterance with information stored in common ground that is typically built up over time. Here, we tested information

integration in a series of experiments with three to five year old children (N = 219). We formalised the integration process using the Rational Speech Act (RSA) model to generate a priori predictions about how information could be integrated. Results show that children flexibly integrate utterance and common ground information, a process which was accurately captured by the RSA model. In ongoing work, we use RSA models to explore how children integrate semantic knowledge with common ground information.

Redundant morphological marking benefits child learners

S. Tal, I. Arnon

Redundancy in morphological marking is found across languages (e.g., agreement, multiple exponence). Its presence is somewhat puzzling given that it adds complexity to the language, and speakers seem to disprefer production of redundant linguistic elements (for example, optional case marking is likely to be omitted when the meaning it encodes is more predictable from context).What could be the functionality of redundant morphological marking? We propose learning as a possible explanation: redundant cues may facilitate learning, making them advantageous in the system as a whole. We test this hypothesis in an artificial language learning study with children, where either word order alone or both word order and case marking serve as cues for thematic assignment. Results show that children learned the redundant language better despite having to learn and produce an additional morpheme. This supports the idea that learning constraints help maintain redundancy in language.

Parental Language, Functional Utterance Type, and Play Context Impact Children's Usage of an Endangered Ancestral Language

C. Lowry, P. Yuksel, P. Brooks

This study investigates the factors that supported children's (age 15-48 month; n = 59) use of an ancestral language, Lazuri, which is being supplanted by a societal dominant language, Turkish. Results indicate effects of parental language, functional utterance type, and play context. One main finding is that caregivers' use of labels and questions spoken in Lazuri and mixed (Lazuri+Turkish) utterances was more effective in promoting children's use of Lazuri, whereas caregivers' comments, demands, and invitations promoted Turkish responses. Children's usage of Lazuri was largely restricted to one-word utterances that were labels and deictic expressions. Hence, when conversational contexts demanded more complex responses, children resorted to the dominant language. Our results illustrate the challenges of ancestral language preservation in contexts where children have greater functional competence in the dominant language, but also suggest that maintenance of the ancestral language can be supported by meaningful interactions that scaffold the child's functional abilities.

"It's in your box!" –– Personal pronoun comprehension in children with ASD

H. Clancy, A. He, R. Luyster, S. Arunachalam

Personal pronouns have been argued to be challenging for children with autism spectrum disorder (ASD). Pronoun comprehension includes (a) establishing the right mappings: first-person pronouns refer to the speaker, and second-person pronouns refer to the addressee; and (b) tracking referent shifts––identifying the speaker and addressee in the current round of conversation. The latter may require social-communicative sensitivity, which children ASD may have difficulty with. Here, we used a multi-converser setting to test pronoun understanding given referent shifts. Results show that both children with ASD and typically developing children know the semantic differences between first- and second-person pronouns, and they know that pronouns' referents shift by discourse role. However, both groups are biased to interpret second-person pronouns as referring to themselves. TD children show similar patterns to the ASD group, despite better performance overall.

Multiword units predict children's non-inversion errors in wh-question formation

S. McCauley, C. Bannard, A. Theakston, M. Davis, T. Cameron-Faulkner, B. Ambridge

Subject-auxiliary inversion in interrogatives has been a topic of great interest in language acquisition research, and has often been held up as evidence for the structure-dependence of grammar. Usage-based and nativist approaches posit different representations and processes underlying children's question formation and therefore predict different causes for these errors. Here, we explore the question of whether input statistics predict children's spontaneous non-inversion errors with wh- questions. In contrast to previous studies, we look at properties of the non-inverted, errorful forms of questions. Through a series of corpus analyses, we show that the frequency of uninverted subsequences (e.g., "she is going" in "what she is going to do?*") is a good predictor of children's errors, consistent with recent evidence for multiword units in children's comprehension and production. This finding has implications for the types of mental representations and cognitive processes researchers ascribe to children acquiring a first language.

NIH/NSF FUNDING SYMPOSIUM (Metcalf Large)

12:30 – 2:00

NSF/NIH funding workshop.
Joan Maling (National Science Foundation), Brett Miller (National Institutes of Health)

Abstract(s) for presentation(s) above

NSF/NIH funding workshop

Joan Maling (National Science Foundation), Brett Miller (National Institutes of Health)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	2:00	
Children's and adults' use of pragmatic inference to learn about the social world. *N. Vasilyeva, M. Ellwood-Lowe, M. Srinivasan*	Preverbal infants' sensitivity to grammatical dependencies. *M. Babineau, A. Christophe*	Hierarchical structure dependence in infants at the early stage of syntactic acquisition. *R. Shi, E. Emond, S. Badri*
	2:30	
Preschool children generate pragmatic inferences from both words and pictures. *C. Richards, A. Kampa, A. Papafragou*	Specificity of infant statistical learning. *S. Parvanezadeh Esfahani, J. Hay*	3 year-old children respect the complex-NP constraint. *M. Hirzel, J. Lidz*

Abstract(s) for presentation(s) above

Children's and adults' use of pragmatic inference to learn about the social world

N. Vasilyeva, M. Ellwood-Lowe, M. Srinivasan

Children readily learn from language. We explore whether children can learn about the social world in indirect ways, from what a speaker could have said—but chose not to say—about a social group. For example, if a teacher has just observed a classroom of boys and girls and says "The boys are good at math," they may express that the girls are worse than the boys at math, because they could have instead said "The boys and the girls are good at math". Such inferences critically depend on the situational context: no inference about the girls would arise if the teacher had only observed a classroom of boys before making their statement. We demonstrate that both preschoolers (N=46) and adults (N=102) are capable of learning about the social world by context-sensitive "reading between the lines", with preschoolers showing a tendency to draw stronger inferences than adults.

Preverbal infants' sensitivity to grammatical dependencies

M. Babineau, A. Christophe

We investigate if preverbal infants have encoded the specific co-occurrences between common content words and function words. Experiment 1 used both common nouns and verbs, while Experiment 2 used only common verbs. Using the Visual Fixation procedure, French-learning 11-month-olds were presented with two types of lists containing either grammatical or ungrammatical phrases. The grammatical lists contained the correct type of function word for each content word (e.g. tu manges 'you eat', des biberons 'some bottles'), whereas the ungrammatical lists contained phrases with incorrect function words (e.g. des manges 'some eat', tu biberons 'you bottle'). In both experiments, we obtained significantly longer looking times for the trials presenting grammatical phrases over those presenting ungrammatical phrases. These results demonstrate that infants as young as 11 months track the co-occurrence patterns between function words and content words (i.e. determiners before nouns, and pronouns before verbs) in their daily language input.

Hierarchical structure dependence in infants at the early stage of syntactic acquisition

R. Shi, E. Emond, S. Badri

The most fundamental principle in the universal grammar is structure dependence. This principle enables children to impose hierarchical phrase structures onto linear linguistic expressions that they hear. In an experiment with 17-month-olds, an age when syntactic acquisition is beginning, we tested this principle (i.e., hierarchical hypothesis) versus statistics based inductive learning (i.e., linear hypothesis). Infants were presented with French sentences in two structures, and the grammaticality of the subject feature agreement was manipulated. Crucially, the contrasting structures in our sentences contained the same linearly ordered feature-bearing words. Thus, the hierarchical hypothesis predicted different listening responses to the sentences of the two structures, whereas the linear hypothesis predicted comparable responses. Results confirmed the hierarchical hypothesis: infants discriminated the structures and processed the feature agreement accordingly. Our finding provides evidence for the structure dependence principle in infants, demonstrating the influence of infants' internal system, suggesting that UG knowledge guides early language development.

Preschool children generate pragmatic inferences from both words and pictures

C. Richards, A. Kampa, A. Papafragou

We investigated whether 3- to 5-year-old children apply pragmatic principles, such as expectations of informativeness, to communicative acts beyond language. In a task adopted from Stiller et al. (2015), children were presented with 3 copies of the same object: a no-feature distractor (e.g. smiley face), a one-feature object (smiley face with glasses), and a two-feature object (smiley face with glasses and a hat). Children were either told "My friend has glasses" (Linguistic) or were told "My friend has this" and presented with a picture of glasses (Non-linguistic), and were asked which one was the experimenter's friend. Children in the Linguistic and Non-linguistic conditions chose the one-feature object at a significantly different rate from controls, starting around age 3.5, with no significant differences between Linguistic and Non-linguistic. Our results offer the first direct evidence that children as young as 3.5 use the principle of informativeness to interpret both words and pictures.

Specificity of infant statistical learning

S. Parvanezadeh Esfahani, J. Hay

Infants' sensitivity to co-occurrence patterns in continuous speech has been extensively documented. However, we still know very little about how infants represent the sequences that are the output of these statistical learning processes. Here we test 8-month-old infants' (N=74) indexical (i.e., talker) and suprasegmental (i.e., stress pattern) representations of newly encountered statistically-defined words. In both experiments, infants were familiarized with a naturally-produced Italian corpus that contained two trochaic (strong-weak) high transitional probability (HTP) target words produced by a female speaker. Following familiarization, infants were tested on their ability to discriminate modified target words, either produced by a male speaker (Experiment 1) or with an iambic (weak-strong) stress pattern (Experiment 2), from foils. In both experiments infants demonstrated a significant familiarity preference, listening longer to the modified HTP words than to foils. Findings demonstrate that infants are able to generalize representations of statistically-defined words across a range of acoustic forms.

3 year-old children respect the complex-NP constraint

M. Hirzel, J. Lidz

By age 2, children understand that in wh-argument questions, a displaced wh-phrase fills an argument role, but it is unknown whether their grammars respect island constraints. Whereas 4 year-olds have been shown to respect relative clause islands and temporal adjunct islands, no research has effectively probed knowledge of islands between age 2 and 4. Here, we demonstrate that 3 year-olds respect the Complex-NP Constraint (CNPC). In a question-after-story task, we compare child responses to (1) and (2).

1. She hugged the bear with the blanket. Which blanket was it?
2. Which blanket did she hug the bear with?

22 children (range:2;8;6-4;2;25) participated in this study. Children in the wh-condition gave adverbial responses 66% of the time, compared to 45% in the control condition ($t = -2.0603$, $df = 20$, p-value = 0.05). We argue that children's resistance to adjectival responses to (2) is best explained by knowledge of the CNPC.

3:00 – 4:15

ATTENDED POSTER SESSION I (Metcalf Small)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	4:15	
Child participation in a Toronto English vowel change. *E. Hall, R. Maddeaux*	Speech rates differentiate nouns and verbs in child-surrounding and child-produced speech. *N. Lester, B. Bickel, S. Stoll*	Investigating the Hypothesis Space of Children's Interpretation of Comparatives. *M. Gotowski, K. Syrett*
	4:45	
The representation of Mandarin tone sandhi by early-implanted children with cochlear implants. *P. Tang, N. Xu Rattanasone, I. Yuen, L. Gao, K. Demuth*	Toddlers both hear and recognize polysemous word meanings: corpus and experimental evidence. *S. Floyd, L. Barak, A. Goldberg, C. Lew-Williams*	Children's Acquisition of Perspective-Taking Benefactive Verbs in Japanese. *A. Ohba, K. Deen*
	5:15	
Syllable repetition is privileged over consonant repetition in infant word segmentation. *M. Ota, A. Holtz, B. Skarabela*	What accounts for socioeconomic differences in child-directed speech? The role of resource scarcity. *M. Ellwood-Lowe, R. Foushee, M. Srinivasan*	Are universal quantifier errors and errors with "only" related?. *J. Spenader, P. Hendriks, B. Hollebrandse, A. de Koster*

Abstract(s) for presentation(s) above

Child participation in a Toronto English vowel change

E. Hall, R. Maddeaux

We examine child acquisition of a vowel change currently in progress in Toronto English, /u/-fronting, comparing children with their parents as well as other adults in the community. Results show that children are generally more advanced in /u/-fronting than adults, particularly in phonetic environments that do not traditionally favour fronting. Younger children (ages four to six) show the most fronting in these environments, with /u/-fronting receding in older children as they approach adolescence. These findings are contrary to the predictions of Labov's (2001, 2007) model of transmission and incrementation, and instead suggest that children may initially overgeneralize phonological changes in progress.

Speech rates differentiate nouns and verbs in child-surrounding and child-produced speech

N. Lester, B. Bickel, S. Stoll

Recent evidence from adult-directed speech in several structurally diverse languages suggests that speech rate is modulated by word class. Adults tend to slow their speech and pause more often before nouns than verbs, arguably reflecting difference in planning load. Here we assess the extent to which this asymmetry extends to child-surrounding (child-directed or overheard) speech (CSS) and child-produced speech (CPS) in a naturalistic longitudinal corpus of Chintang (Nepal). We find that the asymmetry is robustly detectable in CSS. This suggests that the asymmetry might provide a universal cue for distinguishing parts of speech, generalizing a related finding on prosodic differentiation of noun/verb homophones in English CDS. We also found that the asymmetry is present already in the earliest CPS recordings, without any apparent development. While this might reflect simple mirroring of adult performance, the asymmetry might also reflect word planning mechanisms that are similar as those of adults.

Investigating the Hypothesis Space of Children's Interpretation of Comparatives

M. Gotowski, K. Syrett

Young children notoriously produce 'creative' comparative constructions well into development and seem to access non-adult-like interpretations across a variety of experimental tasks. However, no consistent picture has yet emerged of exactly where and why their performance breaks down. In two experimental tasks, we systematically probe young children's interpretation of comparative constructions, constructing a hypothesis space based on cross-linguistic variation and processing strategies. In Experiment 1, children categorized objects to create a partition, then answered comparative questions. In Experiment 2, children viewed slides presenting characters and a distribution of objects and evaluated the truth of comparative and sub-comparative prompts. We find that most children arrive at an adult-like comparative interpretation once these features are controlled for, but our methodology allows us to more carefully zero in on the possible sources of children's deviations. Errors appear to arise from incorporation of contextual elements, pressure to resolve ellipsis, and implementation of degree semantics.

The representation of Mandarin tone sandhi by early-implanted children with cochlear implants

P. Tang, N. Xu Rattanasone, I. Yuen, L. Gao, K. Demuth

For children with cochlear implants (CIs), acquiring tones is challenging, since CIs do not transmit pitch effectively, though early implantation plus longer CI experience reportedly lead to better outcomes. Mandarin has four lexical tones (T1-4) and two tone sandhi processes, generating two allophonic variants for T3. It has been reported that children with CIs who are implanted early (between 1-2 years) can productively apply tone sandhi processes to novel words, though it is unclear how they might comprehend tone sandhi, and how this develops with CI use. In this study, we explored these children's tone sandhi representation using intermodal preferential looking paradigm, with adults and normal-hearing 3-year-olds as controls. The results showed that Mandarin-speaking children implanted before the age of 2 have good lexical tone representations after 2.5 years of experience with their CIs, and are beginning to develop representations for connected speech processes involving tone sandhi.

Toddlers both hear and recognize polysemous word meanings: corpus and experimental evidence

S. Floyd, L. Barak, A. Goldberg, C. Lew-Williams

Languages reuse words to identify multiple, related meanings—a pervasive phenomenon called polysemy. In English, between 40-80% of words have multiple meanings. However, accounts of word learning almost uniformly assume one-to-one mappings between words and meanings, inadvertently predicting that children should struggle to learn polysemous words. We used two methods to evaluate: (1) whether toddlers are exposed to multiple meanings by using topic modeling on CHILDES corpora; (2) to what extent toddlers recognize multiple meanings in an eye-tracking experiment.

Together, this joint computational/experimental investigation found that children are exposed to multiple meanings of common words from the earliest stages of word learning, and have learned to recognize them. This suggests that the nature of everyday word use requires very young children to track and store multiple possible associations in a network of distinct, but related, meanings.

Children's Acquisition of Perspective-Taking Benefactive Verbs in Japanese

A. Ohba, K. Deen

This study presents the first-ever experimental examination of Japanese children's acquisition of perspective-taking benefactive (PTB) verbs. We focus on Japanese giving- and receiving verbs (i.e. ageru 'give,' kureru 'give' and morau 'receive') which encode speaker perspective onto different grammatical roles. This perspective-sensitive property induces a constraint that first-person only occurs in the argument position that speaker's perspective is assigned (i.e. a first-person is allowed as a giver subject in ageru, as a recipient dative object in kureru, and as a recipient subject in morau). We tested whether Japanese 4 to 6yr-olds can assign first-person in the correct argument position based on this first-person constraint when both a subject and a dative object are null. Our experiment shows that children initially (incorrectly) assign the speaker's perspective to the subject of a sentence, but by age 6yrs, they have acquired all perspective properties of PTB verbs.

Syllable repetition is privileged over consonant repetition in infant word segmentation

M. Ota, A. Holtz, B. Skarabela

Recent experimental work shows that infants preferentially segment strings with adjacent syllable repetition (e.g., [didi]), indicating the involvement of an early processing bias for grouping repeated elements in speech. To test whether this effect extends to strings with only consonants repeated between syllables (e.g., [didu]), we carried out two experiments with 9-month-olds (N=32 each). In Experiment 1, infants were first exposed to passages containing one novel word with syllable repetition (e.g., [didi]) and one without any sound repetition (e.g., [nelu]). At test, infants' visual fixation was measured as they heard the novel words played in isolation. Experiment 2 was identical to Experiment 1, except the critical novel words featured repetition of consonants only. The results showed facilitation of segmentation from syllable repetition, but not from consonant repetition. These outcomes suggest that the bias for repeated elements in early speech processing operates only between immediately adjacent units that are phonetically identical.

What accounts for socioeconomic differences in child-directed speech? The role of resource scarcity

M. Ellwood-Lowe, R. Foushee, M. Srinivasan

Parents with fewer educational and economic resources (low socioeconomic-status, SES) tend to speak less to their children, with important consequences for children's later language outcomes and performance in school. Despite this well-established link, surprisingly little research addresses why the SES "word gap" exists. Building on evidence from behavioral economics that reminders of scarcity affect attention and cognition, we ask whether low-SES parents might direct less speech to their children not because they lack parenting knowledge, but because managing the challenges imposed by poverty requires significant cognitive resources. Results of two pre-registered studies—experimental and observational—suggest that caregivers might speak less to their children when they are reminded of their experiences of resource scarcity (Study 1), or when they are currently experiencing resource scarcity (Study 2). These findings suggest that SES-differences in CDS could be partly explained by the cognitive effects of poverty itself.

Are universal quantifier errors and errors with "only" related?

J. Spenader, P. Hendriks, B. Hollebrandse, A. de Koster

Both universal quantifiers like "each" and "all", and adverbial quantifiers like "only" describe subset relations. Do children who make overexhaustive (spreading) errors with universal quantifiers make similar errors with "only"? We tested this in two experiments in Dutch. In Experiment 1 (45 children), picture verification task (PVT) we found a significant positive correlation between errors with "all" and errors with "only" ($p<0.001$). Experiment 2 tested 45 children with "only" with an act-out task and "all" with PVT. We again found that children interpret "only" and "all" as "all-and-only", and a significant positive correlation between adult-like responses with "all" and "only" in the Act-out ($p < 0.05$). Most children fell into three main categories: (1) Adult-like (2) "All-and-only" responses for both quantifiers and (3) Adult-like with "all" but give "all-and-only" responses for "only". We tentatively conclude that errors with "only" and overexhaustive spreading errors are related.

5:45 – 7:45

DINNER BREAK

5:45 – 7:45

POP-UP MENTORING PROGRAM

KEYNOTE ADDRESS (Metcalf Large)

7:45 – 9:00

Bootstrapping verb argument-structure: Syntax, statistics, and discourse.
Cynthia Fisher (University of Illinois at Urbana-Champaign)

Abstract(s) for presentation(s) above

Bootstrapping verb argument-structure: Syntax, statistics, and discourse

Cynthia Fisher (University of Illinois at Urbana-Champaign)

Children use syntax to interpret verbs; this is syntactic bootstrapping. The structure-mapping account of the developmental origins of syntactic bootstrapping proposes that syntactic bootstrapping begins with a universal bias to map noun-phrases in sentences onto participant-roles in events. In this talk, I will review evidence for this account, then discuss challenges to the account that arise from the complexity of verbs' syntactic behavior and the ambiguity of sentences. These challenges prompted us (1) to refine our view of the distributional learning mechanisms that create representations of the syntactic-combinatory behavior of verbs, and (2) to propose that an expectation of discourse continuity allows children to gather evidence for each verb's arguments across nearby sentences in coherent discourse. The proposed learning mechanisms and biases sketch a system in which simple aspects of sentence structure guide verb learning from the start of multi-word sentence comprehension, despite complexity and noise in the linguistic input.

[Back to top]

Saturday, November 9, 2019

9:00 – 5:00

BOOK EXHIBIT (Ziskind Lounge)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	9:00	
Long-Distance Wh-Questions in French Children: Revisiting Computational Complexity. *B. Hollebrandse, S. Durrlemann, L. Rizzi, A. van Hout*	Predicting language proficiency of deaf children. *B. Amador, J. Morford, E. Wilkinson, A. Villwock*	Markedness modulates prediction in person agreement for L1 but not L2 speakers: Evidence from event-related potentials (ERP). *J. Alemán Bañón, D. Miller, J. Rothman*
	9:30	
Late Intervention Effects in Mandarin Sluice Acquisition. *M. Liu, N. Hyams, V. Mateu*	Efficient from the Beginning: Argument Structural Relations in Nicaraguan Sign Language. *M. Flaherty, S. Goldin-Meadow*	Word order and information structure in Russian as a heritage or second language. *T. Ionin, M. Goldshtein, T. Luchkina, S. Styrina*
	10:00	
Examining island sensitivity in native and nonnative speakers: Evidence from acceptability judgments and event-related potentials. *L. Covey, R. Fiorentino, C. Pham, D. Wilson, A. Gabriele*	Iconicity in ASL acquisition: Receptive and expressive vocabulary acquisition. *N. Caselli, J. Pyers*	Previous language influence in additive adult multilingualism of early child bilinguals. *E. Puig Mayenco, J. González Alonso, A. Fábregas, J. Rothman*

Abstract(s) for presentation(s) above

Long-Distance Wh-Questions in French Children: Revisiting Computational Complexity

B. Hollebrandse, S. Durrlemann, L. Rizzi, A. van Hout

The recent surge of interest in long-distance wh-questions is inspired by questions about the acquisition of recursion (de Villiers 2015), as well as novel insights in children's developing parsers (Omaki et al. 2014). What is lacking in this discussion is a fine-grained analysis of computational complexity: which factors render structures complex for children to acquire? The present study investigates long-distance wh-questions in French-speaking children, integrating two such factors: type of question (fronted wh-phrase versus wh-in-situ) and depth of embedding (one versus two embedded clauses).
Our finding that children were more accurate on overt than covert movement is highly surprising given that the pattern is reversed for simple questions without any embedding. Our study has uncovered that the marked character of covert long-distance movement overrides whatever advantage is associated to covert over overt movement in a local environment.

Predicting language proficiency of deaf children

B. Amador, J. Morford, E. Wilkinson, A. Villwock

The age of acquisition of a signed language has been shown to have effects on language ability in deaf individuals. In studies of signed language acquisition, the parental hearing status is often used as an a priori grouping variable: deaf children born to deaf adults and deaf children born to hearing parents. We present familial and language

background data that supports previous research in that deaf children of deaf parents reach higher levels of proficiency than deaf children of hearing parents for both ASL and English when using parental hearing status as an a priori grouping factor. However, this data demonstrates the importance of investigating whether other factors also influence individual variation in language proficiency, such as parents' education level, parents' signing ability, or whether the child attends a residential school or is mainstreamed.

Markedness modulates prediction in person agreement for L1 but not L2 speakers: Evidence from event-related potentials (ERP)

J. Alemán Bañón, D. Miller, J. Rothman

This ERP study investigates how markedness modulates person agreement in L1-English L2-Spanish learners. We probed both first-person (marked) and third-person subjects (default). We then crossed first-person subjects with third-person verbs (and vice-versa) to manipulate agreement. Natives (n=28) showed a P600 for both error types. "Marked-subject + unmarked-verb" errors yielded a larger P600 than the reverse error type, consistent with claims that person-marked subjects allow the parser to generate stronger predictions regarding upcoming verbs. L2ers (n=22, intermediate/advanced) elicited a P600 for both error types, larger for "unmarked-subject + marked-verb" errors, consistent with facilitative transfer. These results suggest that markedness modulates both L1 and L2 processing, but differently. In natives, person-marked subjects allow the parser to generate stronger predictions regarding upcoming verbs. In L2ers, markedness impacts (but does not constrain) agreement when the dependency is established. Overall, this suggests that L2ers can represent features but are less likely to use them predictively.

Late Intervention Effects in Mandarin Sluice Acquisition

M. Liu, N. Hyams, V. Mateu

Mandarin sluice-like constructions with argument wh-remnants require the presence of 'shi', a form that is ambiguous between a copula and a focus marker. If children comprehend 'shi' as a copula, the 'sluice' is analyzed as a pseudo-sluice, which is a copula structure [pro be wh-phrase] with no movement nor ellipsis in its derivation. By contrast, if children comprehend 'shi' as a focus marker, the sluice is derived by focus movement followed by TP-ellipsis, in which case we expect to find the subject > object asymmetry typically associated with A'-movement. Results from a comprehension experiment with 59 Mandarin-speaking children show that children first exhibit a subject advantage at age 5. We argue that this is due to the lexical ambiguity of 'shi' – children initially analyze Mandarin sluices as pseudo-sluices and only once they acquire the focus properties of 'shi' they develop the movement analysis of sluices and intervention effects arise.

Efficient from the Beginning: Argument Structural Relations in Nicaraguan Sign Language

M. Flaherty, S. Goldin-Meadow

Sign languages, like spoken languages, use word order to encode argument structural relations. In addition, sign languages use spatial coreference to mark these distinctions. In previous work, an order-space tradeoff is assumed: word order patterns are examined only where verbs are not spatially modified. To our knowledge, however, this relationship has never been explicitly investigated. Here we ask whether such a trade-off exists in an emerging sign language: Nicaraguan Sign Language (NSL). We find that NSL signers evidence a tradeoff between word order and spatial coreference to indicate who did what to whom. To our knowledge, this is the first documentation of this phenomenon in any sign language. The presence of this tradeoff, assumed but undocumented in older sign languages, is convincing evidence that efficiency need not take generations to build in a new language. It is present from the beginning.

Word order and information structure in Russian as a heritage or second language

T. Ionin, M. Goldshtein, T. Luchkina, S. Styrina

This study examines how English-dominant second language learners and heritage speakers of Russian acquire Russian SVO and OVS word order. Under neutral prosody, SVO is used to answer object questions, and OVS – subject questions. A bimodal acceptability judgment task was used, in which participants read and listened to question-answer pairs, and rated acceptability of the answer. Both native Russian speakers and heritage Russian speakers rated SVO significantly above OVS in answer to object questions, and the opposite for subject questions. In contrast, second language learners made very little distinction between the two word order types. The findings show that the relationship between word order and information structure is quite robust in heritage speakers.

Examining island sensitivity in native and nonnative speakers: Evidence from acceptability judgments and event-related potentials

L. Covey, R. Fiorentino, C. Pham, D. Wilson, A. Gabriele

We examine the role of island constraints in the processing of wh-dependencies by native speakers and adult L2 learners, investigating whether processing is grammatically guided. Using EEG, we examine whether learners engage in gap prediction (indexed by N400) both inside and outside an island. It is hypothesized that the parser will attempt to resolve the dependency in a grammatically licit position, yielding N400. In contrast, inside an island, no gap should be predicted (no N400). This pattern was observed for native English speakers. Mandarin-speaking learners similarly showed grammatically-guided processing, with no effects emerging within the island. However, a qualitatively different response (P600) emerged within the licit condition, and thus unlike natives, learners did not show evidence of predictive processing in the resolution of wh-dependencies. Using data from an acceptability judgment task, we will discuss the relationship between the processing of wh-dependencies within islands and offline sensitivity to island violations.

Iconicity in ASL acquisition: Receptive and expressive vocabulary acquisition

N. Caselli, J. Pyers

Previous language influence in additive adult multilingualism of early child bilinguals

E. Puig Mayenco, J. González Alonso, A. Fábregas, J. Rothman

In this study we examine the exact shape, timing and extent of linguistic transfer in additive multilingualism. We examined the L3 English of two groups of Catalan-Spanish bilinguals in a grammaticality judgement task. Four different properties are tested in the L3 as well as the two previously acquired languages. Our results suggest that (a) when participants show distinctions between Catalan and Spanish, the L3 English data are mostly consistent with the participants' performance in their Catalan grammar

and (b) testing the L1/L2 of the participants is of crucial importance when examining the source of transfer. We discuss our results in light of recent models of morphosyntactic transfer in L3/Ln acquisition, especially as it relates to whether transfer occurs holistically (Rothman, 2015) or on a property-by-property basis (Slabakova, 2017; Westergaard, et al. 2017).

10:30 – 11:00

BREAK (Ziskind Lounge)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	11:00	
Anaphoric that: difference between adults and children. *D. Ahn, S. Arunachalam*	Spoken Word Recognition in Early Childhood. *E. Schoen Simmons, R. Paul, J. Magnuson*	The Ergative Subject Preference in the Acquisition of Wh-questions in Tongan. *K. Otaki, M. Sato, H. Ono, N. Yusa, K. Sugisaki, S. Kaitapu, '. Veikune, P. Vea, Y. Otsuka, M. Koizumi*
	11:30	
Adults and children can predict in naturally variable referential contexts. *T. Reuter, C. Lew-Williams*	Effects of Speaking Style and Context on Online Word Recognition in Young Children. *S. van der Feest, C. Blanco, R. Smiljanic*	The Development of Wh-Question Representations in Infancy: Evidence from 15- and 18-Month-Olds. *J. Lidz, L. Perkins*

Abstract(s) for presentation(s) above

Anaphoric that: difference between adults and children

D. Ahn, S. Arunachalam

A recent study shows that adults readily accept an anaphoric reading of a demonstrative description such as 'that girl' when there is no pointing gesture (Ahn & Davidson 2018). We designed a pointing task and tested whether children have an adult-like understanding of anaphoric demonstrative descriptions. We show that children perform significantly better with anaphoric pronouns ('she', 'it') than demonstrative descriptions. Our data suggest that children do not learn the anaphoric interpretation of demonstrative descriptions until age 4-5, while they learn the anaphoric interpretation of pronouns earlier, by age 2-3. We suggest that the difference between pronouns and demonstratives results from an initial expectation of an exophoric reference upon hearing the demonstrative. This is supported by eye-gaze data that show that children are less likely to look at the target object and more likely to look at the speaker in the demonstrative condition.

Spoken Word Recognition in Early Childhood

E. Schoen Simmons, R. Paul, J. Magnuson

The fine-grained timecourse of adult spoken word recognition (SWR) has been studied extensively, but there have been few studies with young children. A key finding with adults is that words that are similar at onset (cohorts) compete early and strongly, while rhymes compete later and more weakly. This is intriguing developmentally, because multiple theories predict that young (pre-reading) children may not show rhyme competition. We created a simplified visual world paradigm for typically developing pre-reading children and early readers. Participants heard an auditory instruction and used a mouse to click on the named picture. Targets were paired with a cohort competitor, rhyme competitor or phonologically unrelated object. Even our youngest participants demonstrated phonological competition similar to that of adults. Our findings suggest that pre-readers have access to differentiated lexical representations and utilize subtle, temporal differences in the signal to process spoken words.

The Ergative Subject Preference in the Acquisition of Wh-questions in Tongan

K. Otaki, M. Sato, H. Ono, N. Yusa, K. Sugisaki, S. Kaitapu, '. Veikune, P. Vea, Y. Otsuka, M. Koizumi

For children acquiring nominative-accusative languages, the interpretation of subject wh-questions/relative clauses has been reported to be easier than that of object wh-questions/relative clauses. This study investigates whether the same subject advantage is observed in child wh-questions in Tongan, an Austronesian language exhibiting syntactic ergativity. 27 Tongan-speaking children aged 4 to 5 (mean age, 4;10) participated in our comprehension experiment. In each trial, the participants were asked one of the four types of questions (ABS-subjects, ERG-subjects, ABS-objects, and ABS-objects in situ) with a picture presented on a computer display. The results showed there was no statistical difference between ERG-subject questions and ABS-subject questions, while ABS-object questions were significantly more difficult than ABS-subject questions. These results indicate the subject advantage is still at work in the acquisition of Tongan wh-questions. We suggest the subject advantage results from a processing advantage of ERG-subject questions, which involve a resumptive pronoun in a preverbal position.

Adults and children can predict in naturally variable referential contexts

T. Reuter, C. Lew-Williams

A growing body of work indicates that prediction – the pre-activation of representations during language processing – supports language development. However, the ecological validity of such findings is debated, due to the highly-constrained experimental contexts typically used to evaluate children's prediction abilities. While theoretically suggestive, previous conclusions will be largely irrelevant if children cannot generate predictions in response to complex, variable perceptual input. Here we present three eye-tracking experiments that evaluated how adults and children generate predictions when visual stimuli are complex (Exp.1), when auditory stimuli are complex (Exp.2), and when both visual and auditory stimuli are complex (Exp.3, data collection ongoing). Findings indicate adults and children can generate predictions when visual (Exp.1) and auditory (Exp.2) stimuli are naturally complex. Broadly, this investigation addresses a significant limitation of prior research (i.e., uncertain ecological validity) and provides a crucial test for theories claiming prediction as a central developmental mechanism.

Effects of Speaking Style and Context on Online Word Recognition in Young Children

S. van der Feest, C. Blanco, R. Smiljanic

This study investigates how clarity of the speech signal interacts with availability of contextual semantic cues for young listeners, by looking at time course differences in online word recognition for different speaking styles and semantic context. English-learning 4-year olds (n=18, Experiment 1) and 3-year-olds (n=18, Experiment 2) were tested in a visual word recognition paradigm. They heard sentences with a high- versus low-predictability semantic context, in three different speaking styles (Clear Speech, Infant Directed Speech and Conversational Speech). Results (Experiment 1) showed that unlike adults, young children benefitted from contextual cues within each speaking style. Experiment 2 showed that the younger children benefited only from IDS, not Clear Speech. We conclude that for children, clarity of the speech signal is even more crucial than for adult listeners.

The Development of Wh-Question Representations in Infancy: Evidence from 15- and 18-Month-Olds

J. Lidz, L. Perkins

We use a listening-time task to test when infants first represent wh-phrases as arguments in wh-questions. We measure 14-18-month-olds' listening preferences for wh-questions with object gaps vs. overt post-verbal objects (""Which monkey should the lion hug?"" vs. ""*Which monkey should the lion hug him?""). We compare these sentences to simple declaratives with the same transitive verbs (""*The lion should hug"" vs. ""The lion should hug him""). 15-month-olds detected local violations of verb transitivity, showing awareness that these verbs required objects. However, they responded in the same way whenever a local object was missing after the verb, regardless of whether the sentence was a declarative or wh-question. 18-month-olds showed different preferences for declaratives and wh-questions, preferring grammatical sentences of each type. This suggests that they were aware that wh-phrases act as non-local objects. These results support the hypothesis from prior literature that the ability to recognize wh-dependencies develops after verb transitivity knowledge.

SATURDAY SYMPOSIUM (Metcalf Large)

12:15 – 1:45

Leaving the lab: Developmental hypothesis-testing using natural corpora.
Elika Bergelson (Duke University), Daniel Swingley (University of Pennsylvania), Kim Oller (The University of Memphis)

Abstract(s) for presentation(s) above

Leaving the lab: Developmental hypothesis-testing using natural corpora

Elika Bergelson (Duke University), Daniel Swingley (University of Pennsylvania), Kim Oller (The University of Memphis)

Many new insights about infant language development in the past 25 years have resulted from small-scale, cross-sectional demonstrations of precocious learning in the laboratory. These experiments are best for answering the question, "what can infants do, in principle?" In this symposium, we argue that corpus analyses with rich individual-child outcome measures can provide better purchase on
another important question, "what matters most in development?" Viewing learning as the process of turning experience into knowledge suggests a renewed focus on characterizing children's learning environments and learning outcomes quantitatively. Each of the speakers will present studies revealing insights that were available only by taking this approach. We will discuss how the field may progress most efficiently by considering when laboratory learning experiments are essential, and when quantitative assessments of environments and outcomes have greater generality.

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	2:15	
Language shapes children's understanding of number. *C. Yang, M. Lei, T. Lee*	Not getting ahead of ourselves: A cross-linguistic investigation of children's understanding of negation. *L. Pozzan, R. Feiman, J. Snedeker, M. Guasti, K. Dorn, S. Weinert, A. de Carvalho, J. Trueswell*	Children know the default: evidence from verb order in 'because'-clauses in spontaneous speech and elicited repetition. *P. Schulz, E. Sanfelici*
	2:45	
Non-linguistic inhibition predicts lexical inhibition in 6-7 year-old children. *Z. Maher, J. Edwards*	Aspect acquisition correlates less with tense than expected. *J. Mažara, S. Stoll*	Children but not adults use both speech and gesture to produce informative expressions of Left-Right relations. *D. Karadöller, E. Ünal, B. Sumer, D. Özer, T. Göksun, A. Özyürek*

Abstract(s) for presentation(s) above

Language shapes children's understanding of number

C. Yang, M. Lei, T. Lee

Using experimental data from Cantonese-learning children, we demonstrate that children's understanding of the Successor Function (SF)—that every number is followed by another number exactly one greater—is closely linked to the learning of productive rules in their native numeral system.

Not getting ahead of ourselves: A cross-linguistic investigation of children's understanding of negation

L. Pozzan, R. Feiman, J. Snedeker, M. Guasti, K. Dorn, S. Weinert, A. de Carvalho, J. Trueswell

We tested whether real-time processing demands influence children's difficulty understanding negation. Encountering a negator late in a sentence may require updating and/or revising preceding material. Given that learners have difficulty with revision and interpretive control, understanding negation may be easiest for children learning a language where negators tend to occur before the verb (e.g., Italian) rather than after (German) or medially (English). 2-year-old learners of English, German, and Italian

participated in a word learning experiment where they heard a novel word label an action either negatively or affirmatively in their native language ("He's (not) playing with the dax!"). Only Italian children comprehended negation. A separate older group of English children behaved like Italians. Results suggest that the order in which a negator and the negated predicate are encountered influences children's ability to understand negation. They raise the possibility that language learning is influenced by the demands of real-time processing.

Children know the default: evidence from verb order in 'because'-clauses in spontaneous speech and elicited repetition

P. Schulz, E. Sanfelici

German subordinate clauses always allow verb-final (Vfin) placement, which is assumed to be the default order. Embedded verb-second (V2) is the marked verb order: it is possible only in some cases (e.g., complements, relatives, 'weil/because'-clauses) and only if specific licensing conditions are met (Reis 1997). We investigated children's sensitivity to the default verb order in subordinate clauses that allow variation between V2 and Vfin with the example of weil-clauses. Study 1 analyzed weil-clauses in the spontaneous speech of 8 children. Using a delayed-imitation-task, Study 2 prompted V2 and Vfin structures in contexts that fulfilled the specific licensing conditions for weil-V2-clauses in 3- to 5-year-olds (n=109). We found that children start with the Vfin variant of weil-clauses and up to age 5 had a strong preference for Vfin over V2 weil-clauses. This confirms the view that V2 in subordination is late, in complements and relatives as well as in weil-clauses.

Non-linguistic inhibition predicts lexical inhibition in 6-7 year-old children

Z. Maher, J. Edwards

Several studies have found relationships between on-line sentence processing and measures of inhibitory control in children, but little is known about the relationship between inhibitory control and lexical processing. Children, like adults, process words incrementally, with competition from phonological cohort members, which must be inhibited for final selection of the target word. Using the visual world paradigm, we examined the relationship between inhibitory control (as measured by the Flanker task) and frequency-based phonological cohort competition in children ages 6-7. Two phonological cohort members, one of higher frequency (book) and one of lower frequency (bush) were depicted onscreen, along with two additional distractors. We analyzed gaze patterns as children listened to either the higher- or lower-frequency target. Children showed increased looks to higher-frequency targets compared to lower-frequency targets, and preliminary analysis suggests that this difference is more pronounced for children with poorer inhibitory control.

Aspect acquisition correlates less with tense than expected

J. Mažara, S. Stoll

We test the Aspect Hypothesis (Shirai&Anderson 1995) in a longitudinal corpus of Russian. The Aspect Hypothesis states that children learning aspect languages exhibit a strong correlation of past-tense with perfective and present-tense with imperfective verbs. A break-point analysis determined a phase1 with few forms and a phase2 with a steep increase in forms. Jensen-Shannon divergence reveals a strong child-to-adult divergence in phase1 for tokens and types. These divergences decrease in phase2. In both phases the token-divergence is much bigger than type-divergence. For phase2 we assess flexibility of form use in both aspects with entropy measurements fitted with a GAM and determine the points of increase in flexibility through segmented regression. The increase is temporally close for both aspects. Our results suggest that the main difference is in usage rather than proficiency and the impact of tense-aspect correlations on learnability might be overestimated.

Children but not adults use both speech and gesture to produce informative expressions of Left-Right relations

D. Karadöller, E. Ünal, B. Sumer, D. Özer, T. Göksun, A. Özyürek

Spatial relations (e.g., Left-Right) are challenging for children and appear at later stages of language development. However, these findings come from studies focusing on speech only. Prior work has shown that children express some concepts in gesture before speech. A study investigating descriptions of spatial layout of hidden items in a room found that 8-year-olds rarely encode the spatial location of items in speech but use gestures to convey the locations when prompted to gesture. We investigated if 8-year-olds' spontaneous gestures express spatial relations between two items earlier than speech focusing on Left-Right relations. We found that children did not encode Left-Right relations between two entities in speech as frequently as adults did. Rather, they preferred multimodal encodings mostly using two-handed placement gestures. Our results add to the literature on gestures preceding spatial language development in children and extend previous findings to spontaneous use of gestures and Left-Right relations.

3:15 – 4:30

ATTENDED POSTER SESSION II (Metcalf Small)

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	4:30	
Children are sensitive to the internal temporal profiles of events. *Y. Ji, A. Papafragou*	Wordful: Tracking Early Productive Vocabulary Growth with Smartphones. *S. Meylan, M. Braginsky, B. deMayo, A. Sanchez, C. Schonberg, M. Srinivasan, H. Vlach, G. Lupyan, T. Griffiths, M. Frank*	No revision required, still difficult to interpret: Japanese children's comprehension of verb-initial passives. *M. Ishikawa, T. Ito, T. Goro*
	5:00	
Transitive clauses can describe 3-participant events: Evidence against one-to-one matching between arguments and participants in verb learning. *A. Williams, L. Perkins, J. Lidz*	Contact without contact: English digital language input and its effects on L1 Icelandic. *S. Sigurjonsdottir, I. Nowenstein, T. Thorvaldsdottir, D. Gudmundsdottir*	L2 acquisition of contrasts in interpretive ambiguity between VP-ellipsis and Gapping. *H. Hwang, B. Schwartz*

Abstract(s) for presentation(s) above

Children are sensitive to the internal temporal profiles of events

Y. Ji, A. Papafragou

Natural languages distinguish bounded events which are developments leading to an inherent endpoint from unbounded events which have a homogeneous structure with no inherent endpoint. Four-to-5-year-olds demonstrate some awareness of this linguistic distinction. Here we explore children's sensitivity to bounded/unbounded contrasts in event cognition. We hypothesize that the salience of endpoints illustrated by prior studies should be found only in bounded events with a non-homogeneous structure, but not in unbounded events with a homogeneous structure. Adopting the "picky puppet task", we presented 4-to-5-year-olds and adults with a picky girl that liked videos of events containing interruptions that blocked either event midpoints or endpoints. Both children and adults watching bounded events had more difficulty identifying that the girl liked end- compared to mid-interruptions but no such difference was detected among viewers of unbounded events. Our findings reveal children's sensitivity to event temporal structure, which could lay the foundations for linguistic-aspectual distinctions.

Wordful: Tracking Early Productive Vocabulary Growth with Smartphones

S. Meylan, M. Braginsky, B. deMayo, A. Sanchez, C. Schonberg, M. Srinivasan, H. Vlach, G. Lupyan, T. Griffiths, M. Frank

Parental report, e.g., the MacArthur-Bates Communicative Development Inventory (CDI), has long been used to gather information on the development of children's receptive and productive vocabulary. While "short-form" instruments can provide robust estimates of children's scores on the CDI, creating reusable datasets requires dense longitudinal sampling using either multiple long-form CDI administrations or diary methods. We introduce a smartphone app, Wordful, to address this need by enabling model-informed dense longitudinal sampling of parental report. We present the results of a pilot study collecting data on children's expressive language knowledge with 118 parents of English-learning children (16-30 months), consisting of two CDI administrations (Words and Sentences instrument) with 3-4 weeks of app usage in between. The collected data reveals a high degree of parental engagement and a strong item-level correspondence between app-collected data and web-based CDI administrations. Further, we provide initial word learning trajectories for 193 newly-tracked words not on the CDI.

No revision required, still difficult to interpret: Japanese children's comprehension of verb-initial passives

M. Ishikawa, T. Ito, T. Goro

It has been observed that young children show difficulties in comprehending full-passives across various languages (Armon-Lotem et al. 2016). An emerging explanation of the difficulty is the Incremental Processing Hypothesis (IPH: Huang et al. 2013, Deen 2018): children's incremental theta-assignment to overt arguments creates problems when a later-arriving cue for passives (i.e., the passive morpheme) forces them to revise the initial parse. In our study, we examined the predictions of the IPH, utilizing V-initial passives in 5-year-old Japanese-speaking children. Since the passive morpheme (r)are is suffixed on the verb, the crucial cue for the passives appears in the sentence-initial position: no subsequent revision of theta-misassignments should be required. Our result does not conform to the prediction of the IPH: children performed better with actives than with passives, but it appeared the word-order variation had no effects. We suggest that some independent grammatical difficulty is involved in the comprehension of full-passives.

Transitive clauses can describe 3-participant events: Evidence against one-to-one matching between arguments and participants in verb learning

A. Williams, L. Perkins, J. Lidz

On one verb learning hypothesis, infants expect the number of clause arguments to match one-to-one the number of participants perceived in an event (Number Matching). We differentiate this hypothesis from an alternative bootstrapping strategy linking particular grammatical and thematic relations, e.g. transitive subject to agent and object to patient (Thematic Linking). We test whether a 2-argument sentence can describe a scene that infants view as a 3-participant TAKING. Number Matching predicts it cannot: transitives must describe events perceived with 2 participants. Thematic Linking predicts that it can describe any event with the subject as agent and the object as patient, regardless of participant number. We find that 20-month-olds allow a 2-argument sentence to express this 3-participant event description, demonstrating that they do not expect participants to match arguments in number. This supports Thematic Linking over Number Matching: infants privilege the thematic roles of arguments above argument number in verb learning.

Contact without contact: English digital language input and its effects on L1 Icelandic

S. Sigurjonsdottir, I. Nowenstein, T. Thorvaldsdottir, D. Gudmundsdottir

This paper examines possible effects of L2 digital language input on L1, e.g.: Does English digital language input entail a reduction of L1 input for children acquiring Icelandic in Iceland? If it does, is the input reduction significant enough to predict individual differences in outcomes on vocabulary and grammar measures? Four online surveys were constructed (tailored to ages 3-5, 6-7, 8-9 and 10-12) and sent to a stratified random sample of 1,500 participants, yielding a 50% response rate. The surveys were parent-administered and included questions about the children's Icelandic and English input and use as well as tasks testing receptive vocabulary and grammatical factors. Analyses of the input and vocabulary data have been conducted and show a relationship between the frequency of English use and children's English, but not Icelandic, vocabulary. The results imply that digital language input contributes to L2 English skills without yet affecting L1 Icelandic.

L2 acquisition of contrasts in interpretive ambiguity between VP-ellipsis and Gapping

H. Hwang, B. Schwartz

This study investigates whether adult L2ers of English can come to have target-like interpretive contrasts between VP-ellipsis (VPE; e.g., Mom hugged the boy at home and Dad did too.) and Gapping (e.g., Mom hugged the boy at home and Dad in the park.). Whereas Gapping allows the argument following the conjunction to be interpreted as the gapped verb's subject (subject reading, SR) or object (object reading, OR), VPE permits only SR. For L1-Korean speakers, such English contrasts constitute a poverty-of-the-stimulus problem—i.e., knowledge unattributable to their L1, English input, and language instruction. L1-Korean L2ers of English and native English speakers completed a picture-sentence matching task which crossed the variables "Construction" (VPE; Gapping) and "Interpretation" (SR; OR) in a 2×2 design. L1-Korean L2ers, like native English speakers, showed significantly lower acceptance of VPE-OR than of the other three conditions. This result provides evidence that the domain-specific cognitive system constrains adult L2 acquisition.

PLENARY ADDRESS (Metcalf Large)

5:45 – 7:00

Dialect mismatch and learning to read: Research to practice.
Jan Edwards (University of Maryland)

Abstract(s) for presentation(s) above

Dialect mismatch and learning to read: Research to practice

Jan Edwards (University of Maryland)

English-speaking children from low socioeconomic status families frequently experience dialect mismatch when they enter school; their home dialect of English differs from the Mainstream American (MAE) English they hear in school. Recent research suggests that dialect mismatch makes learning to read more difficult. Some researchers have proposed that the negative impact of dialect mismatch on literacy acquisition can be mitigated by using contrastive analysis to teach children how to code-shift between their home non-mainstream dialect and MAE. This talk will report on research suggesting that dialect mismatch makes it more difficult for children to understand MAE and on the first two years of a randomized control trial in the Baltimore City public schools. This randomized control trial is designed to assess the efficacy of Toggle Talk, a literacy curriculum supplement designed to help African American English-speaking kindergarten and first grade children learn to code-shift between African American English and MAE.

7:00 – 8:30

RECEPTION (Ziskind Lounge)

[Back to top]

Sunday, November 10, 2019

Session A (East Balcony)	Session B (Conference Auditorium)	Session C (Terrace Lounge)
	9:00	
A noisy channel model for systematizing unpredictable input variation. *J. Schneider, L. Perkins, N. Feldman*	Not all wh-dependencies are created equal: processing of multiple wh-questions in Romanian children and adults. *A. Bentea, T. Marinis*	Neural generation of scalar implicatures in preschool children and adults. *A. Kampa, B. Zinszer, A. Papafragou, K. Jasinska*
	9:30	
A longitudinal investigation of language mixing in Spanish-English dual language learners: The role of language proficiency, variability, and socio-linguistic factors. *S. Montanari, W. Ochoa, K. Subrahmanyam*	Evidence for the resilience of syntactic processing to L1 attrition. *T. Grüter, H. Hopp*	WH-in situ in Brazilian Portuguese and the influence of Common Ground. *C. Vieira, E. Grolla*
	10:00	
Who says it and what does it sound like? Quantifying within- and between- talker variability in infants' naturalistic input. *F. Bulgarelli, E. Bergelson*	Wh-question processing in bilingual children: Evidence from the visual-world paradigm. *G. Pontikas, I. Cunnings, T. Marinis*	A usage-based analysis of the acquisition of information structure: a study on the acquisition of dislocation in French. *M. Jourdain, E. Canut, K. Lahousse*

Abstract(s) for presentation(s) above

A noisy channel model for systematizing unpredictable input variation

J. Schneider, L. Perkins, N. Feldman

Children systematize their input, learning systematic rules from input with unpredictable variation. We show that the noisy channel model of language acquisition from Perkins et al. (2017) reproduces this behavior. The model assumes some of its sentence representations are erroneous (generated from a noise process) and should not be learned from. We train the model on input from native and non-native English speakers and ask whether it can identify which noun pluralities (singular, mass, or plural) each determiner (e.g., 'the', 'seven', 'which') can be used with. Simulation results show that the model systematizes its input and correctly learns the usages of 52% of determiners when trained on non-native input, well above chance, though lower than the model trained on native input. Our model successfully replicates systematizing behaviors of child learning in the presence of unpredictable variation and shows that a noisy channel can allow learners to consider more systematic grammars.

Not all wh-dependencies are created equal: processing of multiple wh-questions in Romanian children and adults

A. Bentea, T. Marinis

Featural intervention accounts link children's comprehension difficulties with object-which vs. object-who questions to intervention effects, arising when both the wh-object and the subject are lexically restricted. In a self-paced listening study, we tested the predictions of such accounts on children's (N=32) and adults'(N=20) processing of multiple who- and which-questions (MWHs) in Romanian, a language with obligatory multiple wh-movement and strict ordering constraints in who, but not which-questions. Participants listened to forty embedded questions with two extracted wh-phrases, then saw a picture on the screen and had to identify the correct actions and characters. Our findings indicate a speed-accuracy trade-off: participants are more accurate with who-MWH than which-MWH, but slow down when they process who- as compared to

which-phrases. Only adults show an online sensitivity to ordering constraints in who-MWH. Which-MWH display an intervention effect in accuracy and a slowdown at the retrieval region (the clitic).

Neural generation of scalar implicatures in preschool children and adults

A. Kampa, B. Zinszer, A. Papafragou, K. Jasinska

Using fNIRS neuroimaging, we investigated how cognitive (EF), linguistic, and mental reasoning (ToM) abilities contribute to the development of pragmatic reasoning. Preschool children and adults completed a neuroimaging battery including a scalar implicature (SI) task, ToM task, and resting state. Children also completed a behavioral task battery (Vocabulary, EF, ToM). These data provide the first exploration into neural correlates of SIs in 4- and 5-year-olds.

A longitudinal investigation of language mixing in Spanish-English dual language learners: The role of language proficiency, variability, and socio-linguistic factors

S. Montanari, W. Ochoa, K. Subrahmanyam

This study examines language mixing in 26 Spanish-English dual language learners over the course of their first year of preschool. The children's patterns of language choice while interacting in monolingual language contexts were analyzed at age 3;6 and 4;5 to examine: (1) whether the frequency of language mixing changed during the year; (2) whether mixing was related to proficiency as measured by utterance length and lexical diversity; and (3) whether there were different subgroups of children, among the participants, with similar proficiency and language use patterns. The results indicate that language mixing, which was low at both ages, was related to limited lexical resources only at 3;6. However, by age 4;5, language choice was more constrained by sociolinguistic variables – children's awareness of the language prescribed by the majority culture – than by proficiency. An exploratory cluster analysis further reveals different profiles of learners sharing similar proficiency and language mixing characteristics.

Evidence for the resilience of syntactic processing to L1 attrition

T. Grüter, H. Hopp

Long-term L2 immersion can lead to changes in L1 processing and/or representation, aka attrition. While well-attested in lexical processing, evidence for attrition in L1 (morpho)syntactic processing has been limited and mixed. Here we use the visual-world paradigm to test to what extent the processing of ambiguous wh-questions in German (Was jagt die Katze? 'What chases the cat/What does the cat chase') is influenced by the interpretation of their word-order-equivalent in English in (i) L1-German expats in the U.S. (n=21), (ii) L1-German speakers in Germany (n=22), and (iii) L1-English L2-learners of German in the U.S. (n=22). Evidence for such cross-linguistic influence was found in the L2-German group only. Groups (i) and (ii) differed neither in final response nor eye gaze patterns, indicating resilience to L1 attrition at the level of syntactic processing even after long-term immersion.

WH-in situ in Brazilian Portuguese and the influence of Common Ground

C. Vieira, E. Grolla

In adult Brazilian Portuguese (BrP), 30% of Wh-questions are moved-Wh compared to 32,4% of Wh-in-situ (Lopes-Rossi 1996). Spontaneous child data indicate that Wh-in-situ is almost never produced (only 2%, Grolla, 2009) and is the last Wh-question to emerge. Based on Pires&Taylor (2007)'s proposal that Wh-in situ is licit only in contexts with prominent Common Ground (CG), we conducted an experiment with 52 children (4;6- 5;6) eliciting Wh-questions in contexts with prominent and no-prominent CG. For prominent-CG, adults had balanced rates of production of the two strategies. For no-prominent-CG, adults produced more moved-Wh than Wh-in-situ. Children produced fewer Wh-in-situ in both conditions, but they produced even less WH-in-situ in the no-prominent-CG context. The higher production of Wh-in-situ by both groups when there was a prominent CG (p-value <0,01) indicates that Pires&Taylor's hypothesis is on the right track and that children are already sensitive to this pragmatic cue at an early age.

Who says it and what does it sound like? Quantifying within- and between- talker variability in infants' naturalistic input

F. Bulgarelli, E. Bergelson

Words sound slightly different each time they are said, both by the same talker and across talkers. Rather than hurting learning, lab studies suggest that between- and within-talker variability helps infants learn minimal-pairs. To set the stage for linking naturally-occurring variability to vocabulary and word production, we quantified acoustic variability in the SEEDLingS corpus by measuring well-established acoustic properties on all tokens of the top concrete nouns (e.g. ball). These measurements reveal that both between- and within- talker variability is readily available in infants' input, in similar ways to the variability measured in lab stimuli. Further, while between-talker variability is related to the number of talkers in the input, within-talker variability is not related to number of talkers, proportion of the input from the top talker, or token-count. Next steps will link naturally-occurring variability 'in the wild' to vocabulary and word production.

Wh-question processing in bilingual children: Evidence from the visual-world paradigm

G. Pontikas, I. Cunnings, T. Marinis

Research shows similar morphosyntactic processing in monolingual and bilingual children but also nuanced differences. Less is known about how bilingual children process wh-questions. Object-extracted wh-questions are consistently harder than subject-extracted questions for monolingual children potentially due to their initial ambiguity. Previous works with bilinguals have used mostly off-line accuracy. This study builds on Contemori et al. (2018) who investigated wh-question processing in monolingual children with a visual-word task picture selection task. Recovery from initial subject-bias interpretation of object which-questions was shown to be aided by mismatch in number between the two NPs in the sentence. It examines how bilingual children process wh-questions and whether they utilize number mismatch as a facilitatory cue with the same experimental paradigm as Contemori et al. The results suggest equally accurate and qualitatively similar, incremental but time-wise more protracted processing of which-questions for bilinguals. Both groups utilized number mismatch, but not in the same way.

A usage-based analysis of the acquisition of information structure: a study on the acquisition of dislocation in French

M. Jourdain, E. Canut, K. Lahousse

A large body of recent research on the acquisition of Information Structure (IS) shows that children's early constructions seem to have adult-like IS properties. However, according to the usage-based literature, children do not have adult-like syntactic categories from the onset of language acquisition. Through a longitudinal corpus analysis of three French children's early dislocations, we try to understand the nature of the concept of topic in early language production. We show that children's early dislocations belong to different syntactic schemas, but what they have in common is that the functions of the earliest schemas are limited to property-denoting or labeling. Dislocated agents appear 4 or 5 months later. We argue that the topic-comment IS configuration might evolve from these early functions of dislocation schemas.

10:30 – 11:00

BREAK (Ziskind Lounge)

SUNDAY SYMPOSIUM (Metcalf Large)

11:00 – 12:30

Young children's comprehension of negation and its challenges for language acquisition.
Alex de Carvalho (Université de Paris – Université Paris Descartes), Roman Feiman (Brown University), Ann Nordmeyer (Southern New Hampshire University)

Abstract(s) for presentation(s) above

Young children's comprehension of negation and its challenges for language acquisition

Alex de Carvalho (Université de Paris – Université Paris Descartes), Roman Feiman (Brown University), Ann Nordmeyer (Southern New Hampshire University)

Negation is a fundamental, universal, and abstract component of human language and thought. As such, it is of great interest for understanding the relationship between cognitive and language development. Decades of research have investigated how and when children learn and produce the various uses and forms of negation, yet little is known about the difficulties young children face when comprehending negative sentences. This symposium will examine the challenges that children need to overcome to learn how negation is expressed in languages and demonstrate how linguistic and non-linguistic factors can affect the comprehension of negative sentences. Across three talks, we will (1) present evidence that children's comprehension of negation can be masked by cognitive demands, (2) explore whether the acquisition of negation is limited by conceptual development or by children's extant knowledge of their language, and (3) evaluate the impact of negative sentences in the acquisition of word meanings.

[Back to top]

Alternates

S. Antetomaso, M. Elsner: Child production of the Japanese vowel length contrast

Although Japanese 2-year-olds distinguish between short and long vowels in production, they do not yet reach adult-like ratios of duration. Previous work does not specify whether children are adult-like in their production of the length distinction across lexical items or vowel qualities. If children first distinguish vowel length only for particular vowel qualities or particular lexical items, it suggests their mental representation of vowel categorization does not yet include contrastive length. We examined Japanese vowel productions of adults and children ages 2-5 and conducted a mixed-effects regression analysis of vowel duration as a function of phonological length, vowel quality, speaker age, corpus word frequency and whether the word is part of a minimal pair. All age groups reliably distinguish long from short vowels, however there is no evidence that age interacts with vowel quality or word type. This suggests a general representation of contrastive length emerges early in language development.

E. Emond, R. Shi: Grammatical principles guide infants' interpretation of noun phrase references

In an eye-tracker study we investigated 30-month-olds' understanding of the syntactic principles that constrain the possible referential meanings of reflexives and pronouns. Namely, reflexives must co-refer with the antecedent within the local domain (e.g., ""he-i washes himself-i""), and pronoun reference must be disjoint from its local antecedent (e.g., ""he-j washed him-i""). Trials in Experiment 1 displayed picture pairs depicting self-directed versus other-directed meanings of target verbs, while a reflexive sentence (e.g., il-i se-i lave "he-i washes himself-i") or a pronoun sentence (e.g., il-j le-i lave "he-j washes him-i") was presented. Results: infants looked significantly more towards the self-directed event upon hearing reflexive sentences, and towards the other-directed event for pronoun sentences. In Experiment 2 these sentences appeared as sub-clauses in complex sentences. Infants interpreted correctly the participant roles for the verbs in the reflexive/pronoun sub-clauses. Taken together, our results demonstrate that 30-month-olds understand binding principles, which constrain their form-to-meaning mapping.

A. Irani, K. Schuler: Children can acquire verb argument structure with sufficient positive evidence.

We show that children learn verb argument structure from positive evidence in the input, rather than from indirect negative evidence. We test two theories of language learning: the Sufficiency Principle (Yang 2016) and a frequency-based entrenchment approach (Goldberg 1995) using the case of the causative alternation. Our study shows that children generalize from positive evidence in the input, while following the Sufficiency Principle, as opposed to generalizing from indirect negative evidence. Contrary to previous findings (e.g., Ambridge et al. 2008), hearing a verb used frequently in one structural frame does not result in entrenchment of the verb in that structure. No frequency effects indicating entrenchment-based learning were found.

D. Li, X. Yang, T. Roeper, M. Wilson, R. Yin, J. Kim, E. Merritt: Acquisition of recursion in child Mandarin

The present study investigates 4-to-6-year-old Mandarin-speaking children's comprehension of one-to-three-level recursive possessives by an act-out task. It is found that all children demonstrated comprehension of recursive possessives with no between-subject difference, but their accuracy rate was negatively affected by recursion level. When children made errors, they tended to interpret recursion as conjunctive structures or to drop one or more embedded elements, and younger children were especially inclined to drop elements. This supports previous studies showing both conjunction and reduction as recursion-avoidance strategies. The results suggest earlier acquisition of recursive possessives in Mandarin than in English, which is consistent with the idea that overt marking facilitates acquisition of recursion. The differences in parametrically dominant branching direction between English (right) and Chinese (left) may also play a role in causing the English/Chinese variation in the point of acquisition.

Z. Mai, J. Zhou, V. Yip: Sentence-final particle ne in child heritage Mandarin (2;00-3;05)

It is commonly assumed that the amount of dual input that child heritage language speakers have access to is reduced compared to their monolingual counterparts, which may lead to vulnerabilities in selective aspects of the target grammars. This study analyzes the language of child Mandarin speakers and their parents to investigate effects of input reduction on the sentence-final particle ne in Mandarin. We examined 1302 ne-utterances spontaneously produced by three American-born child heritage speakers of Mandarin and their parents in parent-child interactions from 2;00 to 3;05, and compared them with 479 ne-utterances by two age-matched monolingual children and their parents in China. The results show that despite assumed reduced input in heritage language acquisition and the optional use of the SFP ne, the heritage children in fact hear the target SFP more frequently than their monolingual counterparts, which potentially compensates for the reduced amount of input.

M. Miao, X. Yang, R. Shi: Mandarin-learning two-year-olds' online processing of classifier-noun agreement

Mandarin is a classifier language where classifiers are obligatory in numeral-plus-noun expressions. Many classifiers have inherent semantic features that agree with the semantic features of the noun within the noun phrase. Our study examined younger children's sensitivity to classifier-noun agreement involving shape classifiers and count nouns. We tested 32 Mandarin-learning 30-to-32-month-olds in an IPLP online comprehension experiment. Each child was presented with classifier-noun match trials and classifier-noun mismatch trials. In each trial, two side-by-side objects were displayed, one representing the noun that was named in the auditory stimuli, and the other a distractor object. An adjective modifier (i.e. caisede 'colorful') was included before all nouns. If children process classifier-noun agreement in a predictive manner, looking to the noun-target in match and mismatched trials should be different. Our results demonstrate that Mandarin-learning 2-year-olds represent classifier-noun agreement. Furthermore, they process semantic features of classifiers and nouns incrementally and predictively during online comprehension.

J. Oetting, J. Berry, K. Gregory, A. Riviere, J. McDonald: Specific language impairment across dialects: measures of tense and agreement with dialect-informed probes and strategic scoring

In rural African American English (AAE) and Southern White English (SWE), we examined whether children with specific language impairment (SLI) overtly mark tense and agreement structures at lower percentages than typically developing (TD) controls, while also examining the effects of dialect, structure, and scoring approach. The participants were 106 kindergartners, the tasks were four dialect-informed probes targeting tense and agreement, and the three approaches (unmodified, modified, and strategic) varied in the scoring of nonmainstream English forms and responses coded as other. Results were that the unmodified and strategic scoring approaches consistently showed lower percentages of overt marking by the SLI groups than by the TD groups; this was not always the case for the modified scoring approach. With strategic scoring, classification accuracy (SLI vs. TD) was highest when dialect-specific cut scores were employed. Strategic scoring of dialect-informed probes targeting tense and agreement holds promise for clinical practice.

L. Perkins, N. Feldman, J. Lidz: Mind the Gap: Learning the Surface Forms of Movement

Language learners must identify both local and non-local syntactic dependencies. An English learner, for example, must identify that ""What did you eat?"" contains a wh-dependency, where the 'moved' argument ""what"" acts non-locally as the verb's object. Previous literature suggests that this learning takes place by 20 months, whereas infants show knowledge of verb transitivity earlier, at 15-16 months. We provide a computational account for this developmental trajectory. Our model categorizes sentences based on features found in their surface forms, and uses prior verb transitivity knowledge to infer which sentence 'categories' contain locally missing arguments of verbs. It achieves above-chance accuracy on identifying sentences with movement, and out-performs a baseline learner that performs distributional analysis without knowing which verbs require objects. This shows that a learner can use distributional analysis to identify forms that are characteristic of movement in English, and that doing so incrementally requires building on prior verb knowledge.

E. Tenenbaum, K. Carpenter, M. Sabatos-DeVito, J. Hashemi, S. Vermeer, G. Sapiro, G. Dawson: A Six-Minute Measure of Vocal Maturity in Toddlers with Autism Spectrum Disorder

Because autism spectrum disorder is not typically diagnosed until age 4, we know very little about the onset of speech in this population. Here we examined vocalizations among toddlers aged 16-31 months during administration of a 6-minute tablet-based application designed to identify risk for ASD. Vocalizations were recorded using the camera and microphone embedded in a tablet while toddlers watched movies designed to elicit behaviors associated with risk for ASD. Canonical babbling ratio, the ratio of fully formed consonant-vowel combinations to all vocalizations, was significantly higher among TD than ASD participants. Participants who had not yet reached the previously defined canonical babbling status of ratios greater than .15 (Patten et al., 2014) were 10 times more likely to be diagnosed with ASD. These findings indicate significant delays in vocal maturity among toddlers with ASD and suggest that atypical speech production may help identify children with ASD early in development.

K. Yatsushiro, A. Alexiadou: The Acquisition of Argument-Roles in Nominalizations

Grimshaw (1990) postulates that the process of nominalization involves the sup- pression of the external argument of the base verb. More recently, Roeper and van Hout (2009), Bruening (2013), Borer (2013), and Alexiadou (2019) have also argued that nominalization has several similarities with passivization. This makes a prediction: children's acquisition pattern of nominalization should resemble that of passives. In this paper, we show that the abstract structural parallel between passive sentences and nominalizations Grimshaw (1990) postulated makes predictions for acquisition that are born out. Armon-Lotem et al. (2016) and many others observe that (i) active sentences are acquired before passive sentences, and (ii) passives without a by-phrase are comprehended correctly more than those with a by-phrase. We argue that both properties (i) and (ii) have analogues with nominalization, which corroborates the view that abstract syntactic properties underlie (i) and (ii).

[Back to top]

Friday posters

Station 1

L. Abed Ibrahim, C. Hamann, I. Fekete: Language assessment tools for Arabic speaking refugee children

Reliable assessment tools for diagnosis of language impairment or the progress in the acquisition of German by refugee children are still lacking.
This study compares 11 school-age refugees of Syrian origin (7;7-11;6) with 11 younger heritage speakers (5;6-9;0) with Arabic-L1. We assess the L1-skills to establish typical development and investigate L2-performance with standardized tests and an Arabic and a German sentence repetition (SRT) as well as a non-word (NWRT) repetition task. Comparable scores for both groups were found only for NWRT and Arabic-SRT. Refugees had an advantage in crucial L1-measures, whereas they showed poor performance in the German-SRT and other tests involving morphosyntax and vocabulary even with 24 months of systematic exposure. This indicates that the acquisition of adequate vocabulary and complex syntax takes time. The paper explores linguistic/non-linguistic background variables as potential predictors for performance and discusses the results in the context of established diagnostic procedures and educational policies.

N. Adricula, B. Narasimhan: 'Understanding is understanding by seeing': Visual perception verbs in child language

In this study, we examine uses of visual perception verbs see and look in seven corpora of child-caregiver interactions. We examine if and how children learn lexically-specific patterns of "conflations" of visual and mental experiences based on the use of visual vocabulary in the input rather than abstract mappings such as UNDERSTANDING IS SEEING that are claimed to motivate adult-like extensions of perception verbs (Johnson 1999).

B. Ambridge, L. Doherty, R. Maitreyee, C. Bannard, S. McCauley, A. Kawakami, S. Samanta, I. Arnon, R. Berman, S. Zicherman, D. Bekman, A. Efrati, B. Narasimhan, R. Nair, D. Sharma, K. Fukumura, T. Tatsumi, S. Campbell, M. Saito, C. Pye, P. Mateo Pedro, S. Fabiola Can Pixabaj, M. Marroquín Pelíz, M. Julajuj Mendoza: Disappearing causative overgeneralization errors across five languages: The roles of verb semantics and statistical preemption

How do children learn to avoid overgeneralization errors while maintaining productive use of grammatical constructions? We investigated how learners of English, Hebrew, Hindi, Japanese and K'iche' Mayan accomplish this feat, focussing on the domain of causation. According to the verb-semantics hypothesis (e.g., Pinker, 1989), particular verbs/events are inherently more semantically compatible with one or other causative. According to the statistical-preemption hypothesis (e.g., Goldberg, 1995) children probabilistically learn from the input the degree to which individual verbs prefer each causative type. For each language, adults (N=48) and children aged 5-6 (N=48) and 9-10 (N=48) completed a grammaticality judgment task rating, for each of 60 verbs, the acceptability of sentences containing more- and less-transparent causative forms on a child-friendly five-point scale. Mixed-effects models revealed that (except for K'iche') both semantics and preemption were, independently, highly predictive of participants' preferences for more- versus less-transparent causative marking for all age groups and all languages.

Station 2

D. Avelar, Y. Shen, A. Pasquarella, A. Iglesias: Expressive Language Growth of Monolingual Spanish-Speaking Children

The current study examined (1) expressive language growth of young monolingual Spanish speakers, (2) gender differences in expressive language growth, and (3) compared expressive language growth of monolingual Spanish speakers to the growth of bilingual Spanish-English speakers. Story-retell narratives from 440 monolingual Spanish-speaking children at the beginning and end of the school year during 1st, 2nd, and 3rd grade were analyzed. Latent Growth curve modeling was used to identify growth trajectories in two expressive language skills: mean length of utterance in words (MLUw) and number of different words (NDW). Results suggest that even though girls and boys are using a comparable number of words in their narratives across time, girls' expressive vocabulary became slightly more diverse than boys over time. Implications for language acquisition and development in monolingual and bilingual Spanish speakers across different contexts are discussed.

R. Belanger, C. Mayer-Crittenden, M. Minor-Corriveau: The early identification of children at risk of specific language impairment using validated parent questionnaires

Parental reports are being increasingly used as a screening measure for language development. However, the identification of preschool children with Developmental Language Disorders (DLD) using only parental information is a complex task. This is due to the fact that delays in the preschool population often resolve and the tools currently available lack sensitivity and specificity for predicting long-term problems. The goal of the study is to address this issue by using instruments measuring broad developmental domains. Our objective is to determine if a battery of parent questionnaires measuring predictors of DLD is as efficient as an evaluation in determining those children that will go on to be given a diagnosis of DLD. The research team assessed the validity of the battery by monitoring a sample of children longitudinally. In this presentation, data for the 36-month assessment (Year 1) will be shared. Our hypothesis is that results will show a correlation between parental information and standardized evaluations.

C. Blomquist, R. Newman, J. Edwards: Development of Bottom-up and Top-down Competition in Sentence Processing

Semantic prediction facilitates lexical access, but it is unclear how this prediction influences bottom-up lexical competition processes. We asked whether bottom-up competition is influenced by semantic prediction strategies during children's sentence processing. We investigated whether semantic prediction would differentially impact this bottom-up process across a range of ages (5-10 years). Sentence stimuli were constructed in pairs with a predictive or neutral verb (e.g., The brother draws/gets the small picture). Children's eye movements were recorded while viewing four images: target object (picture), cohort (pickle), and two unrelated (cookies, costume). Prediction was seen across all ages, but there are age differences in cohort activation. Older children utilize the semantic prediction to bypass bottom-up competition, while younger children show increased looks to cohort after the predictive verb, but before the target word, suggesting cohort competition from pre-activation of target. These results illustrate the interplay between top-down and bottom-up processes during children's sentence comprehension.

Station 3

S. Brandt, D. Boeg Thomsen, B. Kandemirci, A. Theakston: Do complement clauses really support false-belief reasoning? A longitudinal study with 2-to-3-year-olds

This study investigates whether mastery of complement clauses (He thinks the sticker is in the box) explains the variance in children's performance on explicit false-belief tests when these tests don't contain any complement clauses and when executive-function and general language measure are controlled for. Using a longitudinal design, we tested 48 English-speaking monolinguals, ranging from 33 to 41 months at Time 1. We used multiple tasks for complement-clause and false-belief understanding together with executive-function and general-language tasks. The results from children's understanding of explicit false-belief six months later suggest that children who mastered complement-clause structures at Time 1 were better at explicit false-belief at Time 2. Children's understanding of third-person complements (He thinks...) predicted their explicit false-belief performance while this was not the case for first-person complements (I think...). This study replicates results from previous studies while using cleaner tests of explicit false-belief and controlling for executive-function and general language.

J. Brooksbank: Maintaining a minority language: Why do parents favour less effective parental discourse strategies to more effective ones?

This study examines the parental discourse strategies (PDS) used to influence children's use of Spanish in a minority context. Parental utterances were coded using the PDS set out by Lanza (1992) and two additional strategies. Children's utterances were coded by the language of response and then linked to the PDS. It was predicted that higher-ranked PDS would be more successful in causing children to respond in Spanish than lower-ranked ones. These predictions were borne out by a quantitative analysis providing general support for the Parental Discourse Hypothesis. More successful strategies, however, were used less frequently while the less successful ones were more common. Within family language policy, this apparent contradiction is explained by conflicting pressures on parents to maintain the minority language while preserving harmonious family communication. This is further supported by an examination of the resistance responses, highlighting young bilingual children's role as agents negotiating their own linguistic socialization.

E. Campbell, E. Bergelson: Early vocabulary and hearing loss: Who's getting state services?

Deaf and hard-of-hearing children struggle with spoken language acquisition, often exhibiting delays and deficits (Ching et al., 2013), alongside variable spoken language outcomes (Pisoni, Kronenberger, Harris, & Moberly, 2018). Guidelines suggest that for best spoken language outcomes, children with hearing loss are screened by 1 month, diagnosed by 3 months, and begin services for hearing loss by 6 months. Although early diagnosis and intervention have been shown to predict better spoken language (Diego-Lazaro et al., 2019; Yoshinaga-Itano et al., 2018), we found that less than 40% of children receiving state services for hearing loss (n = 85) met these guidelines. Children with additional comorbidities were less likely to receive early diagnosis and intervention, although they're at greater risk for language delays. We explore language outcomes for children with hearing loss and highlight the importance of hearing screening and service coordination for children with additional comorbidities.

Station 4

I. Canudas-Grabolosa, E. Pagliarini, L. Bonatti: The relationship between understanding numerals and logical connectives: the case of 'and'. A study in 3-year-old children.

In a finite domain, an expression with logical valence with 'and' is equivalent to an expression containing a numeral ('two persons' is equivalent to 'person A and person B'). Furthermore, both numerical expressions and 'and' can have an 'at least' or an exact reading (Panizza et al 2009, Chierchia 2013). In light of these parallels, we investigate whether the understanding of complex conjunctions and their equivalent numerical counterparts is governed by a common primitive operation.
We focus on three- and four-year-olds, an age in they are learning their the exact meaning of the first numerals (Almoammer et al, 2013). We use the give-a-number task (Wynn, 1992) and adapt it for conjuncts, in order to obtain a comparison. We find a correlation between the exact understanding of number and of 'and'. However, error patterns suggest that these may not be clearly tied to common logical operations.

E. Carrigan, M. Coppola: Assistive listening technologies are not enough: Evidence from Deaf and Hard-of-Hearing children's receptive vocabulary skills

Many parents of deaf and hard-of-hearing (DHH) children learning spoken English via assistive listening devices (e.g. hearing aids, cochlear implants) are encouraged not to sign with their child in order to ensure adequate spoken language development. Comparing PPVT raw scores of typically hearing children learning spoken English to those of DHH children using assistive technologies to access spoken English, we find that DHH children improve in receptive vocabulary knowledge at the same rate as typically hearing children, but have significantly lower scores at all ages than typically hearing peers. We argue that, regardless of when they begin using assistive listening devices, DHH children receive less spoken language input than typically hearing children, which translates to delayed receptive vocabulary scores. A solution to this issue, contrary to many clinicians' current recommendations, is to provide DHH children with sign language access from birth, to avoid gaps in language access.

A. Castilla-Earls, J. Grinstead, A. Pratt, A. Auza, A. Pérez-Leroux: SLI Identification, Interface Deficit and Verb Tense in Child Spanish

Tense marking errors have been claimed to be a characteristic of the grammars of child Spanish-speakers diagnosed with specific language impairment (SLI). The grammatical measures used to diagnose such children in studies that then measure tense marking specifically, tend to include measures of tense themselves, potentially rendering the reasoning behind the experimental measures somewhat circular. In this study, we use a new measure of Spanish grammar standardized in Mexico (The Tamiz de Problemas de Lenguaje – TPL), and the percentage of grammatical utterances to identify monolingual Spanish-speaking children with SLI. Neither of these measures target verb tense specifically. Nonetheless, our results suggest a deficit in verb finiteness marking in children with SLI. These results are discussed in light of the Interface Deficit Hypothesis, which claims that anaphoric morphosyntax, nominal and verbal, are impaired in SLI.

Station 5

T. Chen, J. Hartshorne: More evidence that the critical period for syntax ends at 17

Hartshorne, Tenenbaum, and Pinker (2018) analyzed data from 669,498 subjects to provide the first-ever estimate of how the ability to learn syntax changes with age, finding a sharp, discontinuous drop in learning rate at 17.4 years. To address concerns that this finding was an artifact of how the data were analyzed, we re-analyzed these plus additional subjects (total N=1,136,105) using a new, more flexible analytic model and scoring ability using Item Response Theory. These innovations had a negligible impact on the results. We discuss the theoretical and practical implications of these findings for the study of human sentence processing.

D. Chen Pichler, D. Lillo-Martin: Motivation for L2 ASL learning by hearing parents with deaf children

We examine L2 acquisition by a neglected subtype of hearing adult sign language learners, parents of deaf children. These adults begin learning ASL suddenly, in response to an urgent need to communicate with a deaf child. We conducted interviews and surveys with 27 such parents. Survey results reveal long-term commitment ""to become an ASL-English bilingual person."" Two top factors that initially motivated parents' decision to learn ASL are instrumental: belief that ASL would facilitate bonding and communication, and desire for their child to have access to a rich language. Yet, parents' views of ASL are indicative of integrative motivation. We conclude that instrumental and integrative motivation are not mutually exclusive. However, hearing parents do not seek integration and identification with the signing Deaf community for themselves, but rather for their children. Such long-term commitment to L2 learning for the benefit of another is a novel case in L2 motivation studies.

K. Chládková, J. Urbanec, S. Skálová, J. Kremlácek: Newborns' Brain Potentials Reveal Tuning for Speech Segments

Infant brains are known to be specialized for speech from early stages. We asked whether the tuning to speech occurs at the level of syllable, when no streamed prosodic information is available, and whether neural processing of speech sound differences reveals advantage over non-speech. EEG was recorded from 120 newborns listening to durational and spectral changes in CV syllables and inharmonic tones. ERPs at shorter latencies (250-350 ms post-onset) were stronger for speech than for non-speech sounds. At longer latencies (500-700 ms) the processing of speech sound changes was localized at left channels and at the midline. We show that newborns process speech differently than they process comparable non-speech stimuli: their neural responses show an overall early speech advantage, and appear more mature for speech at longer latencies. Newborns tune to the minute speech material in the absence of prosody, suggesting that the acquisition of speech categories could start prenatally.

Station 6

E. Conwell: The effects of lexical diversity on the acquisition of a novel argument structure

To examine the effects of lexical diversity on argument structure learning, 5- and 6- year-old English-learning children participated in a novel argument structure learning task. They watched brief videos described with an SOV argument structure. Children experienced either high or low verb diversity and either NP or pronominal arguments. Then, they were tested on their comprehension of the novel argument structure with both previously heard and novel verbs, as well as with NP and pronominal arguments. Children who had experienced pronouns during the learning phase performed better overall than children in noun phrase learning conditions, suggesting that pronouns facilitate learning. There was also an effect of the congruency of the argument types across learning and test. A marginal interaction of verb diversity and argument type at

test suggested that the level of verb diversity during learning affected children's learning strategies (i.e., memorization vs. generalization). Lexical experience affects argument structure learning.

A. Cournane, M. Hirzel, V. Hacquard: Learning to map modals to meanings: an elicited production study on 'force' and 'flavor'

Modals (e.g., can, must) express possibility and necessity ('forces') in different 'flavors' (given certain rules or goals (priority), or evidence (epistemic)). Comprehension studies show that children have difficulty with modal meanings until age 4-5, despite starting to produce them by age 2. We use a sentence-repair task (e.g., prompts to repeat obscured sentences: Kat *pink noise* go down the red path) to probe the extent to which children's difficulty stems from the complex mapping of modal meanings to forms, by testing what modal words children themselves use to describe carefully controlled modal contexts: what forms they use to express various force-flavor combinations, and whether they use distinct modals to differentiate force and flavor. We show that children differentiate 'flavor' by using different modals (can in priority, might in epistemic), but not force (possibility modals predominate), both contra adults.

P. Curtis, M. Roberts: Modularity in Phonological Networks Predicts Future Language Development in Toddlers with Delayed Language Development

Many assessments of young children's developing lexica rely on measuring the size of the lexicon. However, considering the composition of the lexicon may give additional insight into children's language acquisition processes. The purpose of the current study was to address whether early phonological properties of the lexicon predict later language development. In a sample of 85 language-delayed toddlers, children's parent-reported vocabularies were used to form weighted one-mode phonological networks. Modularity was used as a numeric metric of the tendency for children's phonological networks to consist of separate clusters of highly connected words, with few words connecting clusters. The modularity of children's phonological networks at baseline was a significant predictor of their overall language scores 12 months later, after controlling for covariates, including vocabulary size. These results reveal that the structure, and not just the size of children's early vocabulary provides incremental validity in predicting later language outcomes.

Station 7

A. de Koster, J. Spenader, J. Dotlacil, P. Hendriks: A multiple cue explanation of collective interpretations with 'each'

Sentences with plural expressions are compatible with distributive and collective interpretations. Adults and children show different preferences regarding these interpretations. Adults generally prefer collective interpretations, whereas children do not show this preference. Dotlacil (2010) argues that the adult collective preference arises via an implicature. Adults can reason about another, more informative, option with 'each' that rules out the distributive interpretation. Crucially the implicature relies on the distributive force of 'each'. Adults dislike 'each' in combination with collective interpretations. However, previous findings suggest that adults accept 'each' in collective situations at surprisingly high rates. We argue that verb semantics plays a role in the just mentioned findings. We predict that dependent verbs in collective contexts are less acceptable with 'each' than independent verbs. The results show that verb-type indeed influences the acceptability of collective situations with 'each'. However they also raise an important question regarding the origin of the adult collective preference.

J. de Villiers, J. Spenader: Are conservative quantifiers easier to learn? Experiments with novel quantifiers

Previous research found evidence for the claim that conservative quantifiers are easier to learn, offering an explanation for why quantificational determiners are universally conservative. Hunter and Lidz (2013) taught 20 five-year olds a novel quantifier with the conservative meaning "not all" or the non-conservative meaning "not only". Children performed better than chance with "not all".

In three experiments, we also taught "not all" and "not only" to both children and adults using different methods. We failed to replicate these earlier findings. These results suggest that a learnability advantage is not a plausible explanation for why quantificational determiners are universally conservative. Furthermore, compared to other word classes, novel quantifiers are difficult, with only around 25% of children succeeding in learning either of the quantifiers. More training, perhaps incorporating more syntactic cues, such as a partitive construction might improve outcomes.

I. Eigsti, E. Tenenbaum, A. Naples, R. Jones, S. Sheinkopf: Low-Verbal Investigatory Survey for Autism (LVIS) – An initial validation

To understand the mechanisms underlying language acquisition, we need to understand what aspects of communication remain intact when language fails. Approximately 30% of individuals with autism spectrum disorder (ASD) are minimally verbal (MV), but communicative capacity within this population varies widely. The current study describes the Low Verbal Investigatory Survey (LVIS), a measure designed to assess communicative competence in MV children with ASD. Results provide initial validation of the LVIS as a measure of communicative competence that captures multiple dimensions of skills in the understudied population of MV children. The measure is short, easy to use, and is significantly correlated with gold standard measures of language ability. Future work will explore the predictive validity of the LVIS for language outcomes. Increased understanding of communicative capacity among MV children with ASD can help us understand mechanisms of language acquisition more broadly and may help us target interventions for this population.

Station 8

A. Fitch, A. Lieberman, R. Luyster, S. Arunachalam: Contexts for third-party word learning: Joint attention matters

Toddlers are able to learn new words from overheard interactions in the lab, but seemingly do not in the real world. One possible explanation for this disparity is that like child-directed speech, the context in which words are learned matters (e.g. the interlocutors must be engaged in joint attention). We tested this by comparing two-year-olds' abilities to learn novel nouns in two overheard interactions: one with joint attention and one without (the experimenter pretended to be distracted by her notes). Findings demonstrated that the toddlers only learned the novel words when the experimenters jointly attended to each other. This suggests that joint attention is an important cue for word learning through an overheard interaction, just as it is for child-directed interactions.

R. Foushee, Y. Xu, M. Srinivasan: How do we talk to children? Leveraging speech corpora to quantify how we simplify speech to children

Prior research has consistently found that the amount of child-directed—but not overheard—speech in children's home environments between 18 and 30 months predicts their subsequent vocabulary growth. These findings suggest that, while children are able to learn new words from the child-directed speech (CDS) they receive, they are not able to learn new words from the speech that they overhear. Taken together with findings that children of these same ages are able to learn new words from simplified overheard speech in experimental settings, we propose that early in development, naturalistic overheard speech—which will often consist of speech between adults (ADS)—

is too complex for children relative to child-directed speech, leading them to disattend from it until it is of equivalent complexity to the CDS they receive. We test this idea by applying metrics of complexity to child-directed and conversational adult corpora.

D. Gagne, A. Senghas, C. Flagg, M. Coppola: Characteristic heritage language use in an emerging language: Evidence from morphosyntax and syntax

Hearing children who have deaf signing parents and who use a spoken societal language are considered Heritage users of their sign language. This study investigates deaf and hearing signers' uses of morpho-syntactic and syntactic features of Nicaraguan Sign Language (NSL), a language with a short 40-year history. Twenty-four NSL signers from three groups participated: Cohort 1 (deaf; parents), Cohort 2 (deaf), and hearing children of Cohort 1 (Codas). The stimuli were short video clips designed to elicit sentences with spatial modulations. Responses were coded for spatial layout (Rotated, Unrotated, or Neutral) as well as for the relative ordering of Subject, Verb, and Object. Among NSL heritage signers (Codas), 1) spatial morpho-syntax appeared resilient, likely due to the absence of conflicting constraints from Spanish, and 2) NSL Codas nevertheless exhibit characteristic heritage language productions, drawing from structures in either of their languages and blending them as needed.

Station 9

J. Grinstead, R. Padilla-Reyes, B. Flores-Avalos: Inhibition, General Lexical Development and the Quantity Implicature in Child Spanish

What cognitive ability or set of cognitive abilities underlie the ability to generate a pragmatic scalar implicature? Existing work in adult semantics-pragmatics suggests that working memory is a plausible factor, while work in developmental semantics-pragmatics suggests that some combination of inhibition, working memory and lexicon are responsible. In this study, a sample of monolingual Spanish-speaking children are given a Truth-Value Judgment Task to determine their ability to generate a "some, but not all" pragmatic implicature with the existential quantifier algunos (some). Children are given independent measures of lexical development and executive function, including inhibition. Inhibition and lexical development are found to be predictive, as they were elsewhere in the literature for collective-distributive implicatures.

M. Guasti, F. Costa, N. Stucchi, E. Granocchio, D. Sarti, E. Pagliarini: Decoding skills in reading by early L2 children and by monolingual children with and without Dyslexia in a transparent orthographic system

How can one tease apart poor reading performance in the L2 due to delayed exposure to the L2 to that due to Dyslexia? On the basis of a standardized test on reading words and pseudowords in Italian, we established that Early L2 children with typical development (exposed to Italian by age 3 years and literate only in Italian) read faster and made less errors than monolingual children with dyslexia (ML_DD) and are similar to monolingual children with typical development (ML_TD). From grade 3 to 5, we observe that early L2 children automatize reading, as they read words faster than pseudowords. This is not the case for ML_DD. The three groups do not differ in non-verbal IQ.

J. Hartshorne: Birth-order effects on vocabulary persist throughout the lifespan

The linguistic input varies significantly for children of different birth orders. Most saliently, younger children receive large amounts of input from inexpert speakers. It is unclear whether this should lead to worse learning (less direct parental input) or better (a simpler model to learn from). The results so far are scanty and contradictory. Moreover, they focus on infant language, leaving open the possibility that any effects are temporary.

We assessed the vocabularies of 108,312 English-speaking individuals (ages: 4-91). Controlling for family size, we found that first-borns tended to have larger vocabularies. This effect appeared in childhood and persisted throughout adulthood. Surprisingly, this result appeared even for second-language acquisition that takes place out of the home (e.g., in schools). This suggests the effect of birth order on language acquisition may be indirect, perhaps mediated by intelligence.

Station 10

K. Hitczenko, N. Feldman: Naturalistic data support distributional learning across contexts

Infants learn which acoustic dimensions of their language are contrastive. Past work has argued that infants do this by tracking acoustic distributions of sounds and searching for bimodal distributions, but this particular approach is insufficient for naturalistic speech, where distributions along contrastive dimensions are often unimodal. We present a new idea for how learners could use distributions to learn phonetic contrasts, namely that infants track acoustic distributions across contexts and learn that a dimension is contrastive if the distribution shape changes substantially across contexts. Using the test case of vowel length, we show that, as our account predicts, there are more extreme distribution shape changes in Japanese (where length is contrastive) than French (where it is not). These results show that distributions across contexts provide a signal to contrastiveness that learners could use, and are among the first showing how language-specific phonetic learning could arise from naturalistic data.

D. Horn, P. Jennings, T. Mcgraw, P. Zhou, W. Ma: Singing Facilitates Word Learning and Memory

The study examines whether singing facilitates 2.5- and 4.5-year-old children's learning and long-term memory of new words. Each child completed a word-learning task (Day 1) and a long-term memory task (3-7 days later). Three major findings emerged. First, both the 2.5-year-olds and the 4.5-year-olds learned the words – regardless of whether they were sung or spoken. Second, in the 4.5-year-olds, word-learning performance did not differ between the sung and spoken words. However, in the 2.5-year-olds, word-learning performance was better for sung words than for spoken words. Third, for the long-term memory task, the 3.5-year-olds did not remember the words – regardless of whether they were sung or spoken. However, the 4.5-year-olds still remembered the words learned in song but not the words learned in ADS. These findings suggested that singing facilitates young children's word learning and long-term memory, and that the effect of singing on child word learning attenuates with age.

A. Hu, V. Kozloff, Z. Qi: Relationship between statistical learning and grammaticality judgment in children with autism spectrum disorders

There is a great interest in whether statistical learning (SL) is atypical in ASD. Nevertheless, research findings are mixed. The current study investigates the contribution of statistical learning (SL) across visual and auditory modalities and across linguistic and nonlinguistic domains in explaining the language variations in children with autism spectrum disorders. Children with ASD completed four SL tasks and an auditory grammaticality judgment task. Our findings suggest that children with ASD are capable of learning statistical information from both the visual and auditory modalities, but might show specific weakness in learning speech-related statistical information. Grammatical ability in children with ASD is positively correlated with auditory SL abilities, controlling for visual SL and social communication skills. In addition, we observed substantial within-individual variability in their SL abilities across linguistic and non-linguistic domains, highlighting the necessity to systematically assess SL abilities across tasks.

Station 11

L. Kremin, A. Orena, L. Polka, K. Byers-Heinlein: Switching It Up: Investigating Naturalistic, Infant-Directed Code-Switching

Code-switching is common in bilingual environments and may affect language acquisition. Some bilingual children may hear frequent code-switching, as indicated by parental-reports (Byers-Heinlein, 2013) and short laboratory studies (Bail et al., 2015), although these studies are limited by possible reporting biases and observer effects. We examined parents' natural code-switching behaviors in a corpus of infants' language environments, recorded using Language ENvironment Analysis (LENA) devices. Twenty-one bilingual families contributed three full-day recordings when their infant was 10-months-old, and 16 families contributed an additional day when their infant was 18-months-old. Our results show that a) code-switching was relatively rare, b) switches were produced in a variety of syntactic locations both between and within sentences, and c) family-to-family variation was large. Together, these and previous results (Byers-Heinlein, 2014; Bail et al., 2015) suggest code-switching frequency and syntactic location vary between families and communities, leading to unique language acquisition challenges for each bilingual child.

J. Lany, A. Thompson, A. Aguero: What's in a name, and when can a [beep] be the same?

Words influence cognition well before infants know their specific meanings. For example, three-month-olds are more likely to form visually-based categories when exemplars are paired with spoken words than with sine-wave tones. We tested whether structure in infants' environment can foster this effect. Caregivers often use exaggerated "showing" gestures when labeling objects, presenting words in synchrony with object motion, and creating amodal temporal structure in auditory and visual modalities. Because attention to amodal structure attenuates encoding information specific to just one modality, we hypothesized that it can lead auditory signals to impact visually-based categorization. Indeed, when 3-month-olds are familiarized to videos in which tones occur in synchrony with object motion, tones subsequently facilitate categorization, just like words. Moreover, familiarizing infants to word-object synchrony enhances their subsequent categorization in the presence of words. These results suggest that structure in infants' environment may contribute to the special effects that words have on categorization.

S. Logue, C. Sevdali, R. Folli, J. Gerard: Environmental factors and sentence complexity in child second language acquisition

This study examined the impact of environmental factors (overall length of exposure, language use at home, richness of the L2 environment, maternal level of education, and maternal second language proficiency) on comprehension of sentence structures ranging in complexity (active voice and subject relative clauses—canonical order; passive voice and object relative clauses—non-canonical order) in child L2 acquisition. The experimental design comprised a simple colouring task completed on a touchscreen PC. Evaluation of environmental factors was made through a parental questionnaire. Participants were 41 Arabic-speaking children acquiring L2 English and aged from 69 to 147 months old. A regression analysis using participant averages revealed a positive association for overall LoE, language use at home, and richness of L2 environment on the comprehension of non-canonical forms. Results suggest that greater comprehension of complex sentence structures involving non-canonical forms in cL2 require longer L2 exposure time and use, and richer L2 experiences.

Station 12

P. López-Beltrán, M. Pulido, P. Dussias, M. Christiansen: Reading performance in late L2 learners is predicted by native-language chunking ability

Recent evidence suggests that while native language (L1) learning relies on the extraction of multiword units (MWUs) for the acquisition of grammatical knowledge, adult speakers have difficulty extracting frequently co-occurring MWUs when learning a second language (L2) [1,2]. Thus, differences between child L1 and adult L2 acquisition may be due in part to differences in the ability to extract these chunks ("chunking ability"). Crucially, it has also been shown that individual differences in chunking ability in the L1 can account for performance in reading tasks [3,4]. However, if chunking ability differs in the L1 and the L2, as has been suggested, reading performance in the L2 might be better predicted by measuring chunking ability in the L2 than in the L1. In the current study, we tested this hypothesis and foun that the reading performance of late learners of Spanish (L1 English) is predicted by measures of chunking ability in their L1.

C. Lutken, G. Legendre: What do you think what's the cause of children's errors in biclausal questions?

Previous work has shown that English-speaking preschoolers make systematic errors in the production (1) and comprehension (2) of biclausal questions.

(1) What/who do you think who the cat chased?
(cf. Who do you think the cat chased?)
(2) Q: How did the boy say what he caught?
Child's answer: A fish! (as opposed to loudly)

These errors suggest children analyze the first wh-phrase as a 'scope-marker' (SM), attested in German. The co-presence of these errors in production and comprehension suggests children may temporarily adopt multiple UG-licensed grammars. However, it is also possible these errors are the result of immature processing. This study uses a within-subjects design to test for correlation between production and comprehension performance. If these errors are the result of a competing grammar, we expect a correlation between error types within individuals. However, our study found no such correlation. We discuss a processing explanation for this phenomenon.

X. Ma, Q. Xu, V. Valian, M. Chodorow: Testing the Tolerance Principle on Corpus Data

In language acquisition, rule learning can lead to overgeneralization errors (e.g., ""He falled""; Marcus et al. 1992; Yang, 2005). But what leads to rule learning in the first place? To predict when a rule will be productive, Yang (2005, 2016) proposed the Tolerance Principle (TP). It quantifies the precise number of exceptions that a learner can tolerate: $\theta = N/\ln(N)$, where N is the size of the corpus, and ln is the natural log. If the irregulars e are no larger than θ, rule acquisition can take place. TP has successfully predicted performance on artificial language learning t (Schuler, Yang and Newport, 2016) but has not been fully supported by corpus data. This study proposed a new methods to test TP on Adam, Abe and Eve's data. The finds show that TP holds true for corpus data too.

Station 13

A. Martinez-Alvarez, J. Gervain, E. Koulaguina, F. Pons, R. de Diego-Balaguer: Prosodic cues enhance non-adjacent rule learning in infancy

One fundamental mechanism suggested to underlie grammar acquisition is rule learning. Recent neurocognitive proposals postulate that infants' attentional system support language development (de Diego-Balaguer et al., 2016). This study tests the hypothesis that prosodic cues promote the learning of non-adjacent regularities in infancy. We predict that the use of prosodic cues -as a proxy of exogenous attention capture present in early infancy- will allow young infants to learn the rules. We presented 8-10-month-olds (n = 83) with AXB rule sequences or a control structure. The stimuli either contained or lacked pitch cues in the dependent elements. Rule discrimination was measured behaviorally and using functional near-infrared spectroscopy. Only in the presence of prosodic cues highlighting the elements to be learned, infants show

successful rule learning and a significant larger activation (oxyHb) for the rule condition in bilateral temporal and frontal areas, suggesting that infants' use of prosodic cues facilitates their learning of rules.

N. Meir, O. Parshina, I. Sekerina: The interaction of morphological cues in bilingual sentence processing: a stronger cue in one language can enhance a weaker cue in another

The Unified Competition Model accounts for different processing strategies regarding word order and morphological case marking in different languages in monolinguals. What happens with predictive on-line processing in bilingual children whose two languages, i.e., L1-Russian and L2-Hebrew, differ in morphological cue weight? Russian provides multiple case cues, with case being the strongest cue. In Hebrew, the [ACC] marking is more limited. Bilingual Russian-Hebrew speaking children, Russian- and Hebrew-speaking monolingual controls in [ACC] case production and Visual-World eye-tracking comprehension experiments. In production, monolingual controls were at ceiling, while bilinguals were less accurate. In comprehension, monolinguals predictive interpretation of a morphosyntactic cue was related to the cue weight: Russian monolinguals used case-marking cues predictively, but Hebrew monolinguals did not. Bilinguals revealed an agent anticipation not only in L1-Russian, but also in L2-Hebrew pointing at L1-L2 cue weight transfer: a weaker L2 cue is reinforced by a stronger L1 cue.

C. Moore, E. Bergelson: Syntax and the world agree on mass/count distinctions

Infants can, in principle, use both syntactic information and their perceptual experiences with substances and objects to learn how mass vs. count distinctions are encoded in their language. We used the SEEDLingS corpus to determine how often syntactic and perceptual information aligned in infants' environments, focusing on 30 mass nouns from the MCDI. We annotated all instances where these words were said while the object was visually available to the infant in ~350 hours of home video with 6-17-month-old English-learning infants. In each case, we determined both the syntactic frame (mass syntax, count, or ambiguous) and the perceptual appearance (object or substance) of each noun. We found that syntax and perceptual appearance align significantly, but that the majority of the syntactic information infants receive about mass nouns is ambiguous. We discuss implications concerning the integration of syntactic and perceptual information during mass/count learning.

Station 14

M. Néron-Poirier, C. Yang, R. Shi: Statistics-based grammatical categorization in infants is constrained by phrase structure

Infants are well-known for their powerful statistical learning abilities. We tested statistics-based grammatical categorization versus grammar-guided learning as competing hypotheses. We considered two distinct structures: NP-[Det+Adj+N], PP-[Prep [Det+N]]. Our corpus analysis (CHILDES) showed that the linear probability for Prep to predict N one word downstream is higher than that for Det to predict N one word downstream, thus favouring better N categorization in PP. Grammar-constrained learning, however, favours statistical computation between these words within the NP over the PP. In a preferential looking experiment, French-learning 20-month-olds were familiarized with sentences beginning with [Det+Adj+N], or sentences beginning with [Prep [Det+N]]. All words were novel except the sentence-initial function word. All infants were tested with Word-3 as a N following a new determiner (grammatical: Det+N) versus as a verb (ungrammatical: Pron+V). Results: the Det familiarization group discriminated the test trials, but the Prep group did not. The findings support grammar-guided statistical learning.

E. Nguyen: The predictive power of lexical semantics on the passive behavior in young children

The English verbal passive has been shown to be delayed in children, with several studies having noted that performance varies by verb depending on the particular lexical semantic class. Nguyen & Pearl (2017) identified five relevant lexical semantic verb classes and predict that children's passive success is dependent on age and lexical semantic profile. Our goal is to identify the lexical verb asymmetry, if any, in 4-year-old children. In a TVJT, children's success was predicted by lexical profiles. With comparable success on actional verbs and object-experiencer verbs, 4-year-olds have difficulty with only some non-actional verbs, notably subject-experiencers, contrary to Maratsos et al. (1985).

T. Ober, P. Brooks: Using SEM to Identify Direct and Indirect Influences on Cognitive and Language Development of Toddlers from Low-Income Families

This study examined a constellation of factors impacting developmental trajectories of toddlers (N=672; 49.7% male) from low-income families (EHSRE dataset; Love et al., 2005). We used structural equation models (SEM) to distinguish direct and indirect influences of contextual (home environment), maternal (educational attainment, maternal distress), interactional (joint attention, negative interaction), and child (infant cognition, gestational age, gender) factors on cognitive ability and receptive vocabulary at 36 months. Using predictors assessed at 14 months, the SEMs accounted for 22.0% of variance in Bayley MDI and 23.8% of variance in PPVT scores at 36 months. Joint attention at 14 months was the strongest predictor of 36-month outcomes. Home environment and negative interaction influenced outcomes indirectly via joint attention. Infant cognition (Bayley MDI at 14 months) co-varied with joint attention, yet also showed a direct association with 36-month outcomes. Gestational age and gender influenced outcomes indirectly via infant cognition.

Station 15

Y. Oshima-Takane, L. Pierce, M. Ma, H. Nakano: Cross-linguistic influence on implicit processing of null object sentences in Japanese-English bilinguals: an ERP study

Twenty-nine Japanese-English bilinguals who acquired Japanese as their first language and had high English proficiency participated in an ERP study investigating whether Japanese-English bilinguals process English and Japanese null object sentences (ungrammatical in English but grammatical in Japanese) similarly to respective monolinguals. Although bilinguals made native-like explicit judgments about the grammaticality of English and Japanese null object sentences on a Likert scale offline, their ERP patterns indicated that they processed both English and Japanese null object sentences similarly to Japanese monolinguals. However, the ERP patterns of the bilinguals living in English countries for longer than 7.5 years were closer to the patterns of English monolinguals. These findings suggest that although there was some influence from Japanese to English when processing English null object sentences online, the bilinguals who were exposed to English long enough were able to show native-like online implicit processing.

R. Patt, S. Arunachalam, L. Wagner: The development of a sense of an ending

Preschool children use tense/aspect morphology to distinguish between completed and ongoing events but often accept past-perfective forms (drew a circle) for incomplete events (drawing a partial circle), effectively 'neglecting' the event's endstate. One explanation is that children's assessment of boundaries is imprecise and requires extreme contrasts. We tested adults and older children (7-year-olds) asking them to use a sliding-scale on a tablet to judge how well a target sentence matched a picture. Pictures showed either wholly or mostly complete (~75%) events; Target sentences could be past-perfective (drew), present-perfect (has drawn), or past progressive (was drawing). Results showed that children, like adults, preferred wholly over partially complete endings for both perfective forms, but, unlike adults, showed no preference for partially

over wholly complete endings for progressives. Thus, while 7-year-olds lack adult-like pragmatic competence, their appreciation of how aspect marking refers to endstates is much like adults.

R. Pomper, M. Kaushanskaya, J. Saffran: Changing dimensions affects older children's language processing

Children, like adults, incrementally process speech using cues to identify a referent before it is labelled. Past research has shown that incremental processing can lead children astray when they misinterpret a syntactically ambiguous sentence or anticipate that an object will be identified using a different dimension. In the current experiment, we examined whether older children's language processing would also be affected by a change in dimensions and whether this was related to individual differences in executive function (EF). We found that 5-year-olds were significantly less accurate in fixating an object after vs. before a dimensional switch. They were also less accurate when they were unable to anticipate vs. able to anticipate the dimension that would be used. This last result was moderated by EF, such that children with higher EF (higher accuracy in the mixed block of the DCCS) were more affected by unpredictability in our language processing task.

Station 16

E. Portelance, G. Kachergis, M. Frank: Comparing memory-based and neural network models of early syntactic development

Children's lexicon and syntactic abilities grow in tandem, resulting in a tight correlation between vocabulary size and grammatical complexity (e.g., Bates et al., 1994; Frank et al., 2019). This is consistent with the hypothesis that children's early grammatical abilities are well-described by lexicalized models (e.g. Goldberg, 2003). Some such models are strongly lexicalized, including no representational abstractions; others provide the capacity for learning abstractions. We compare the Chunk-based Learner model of McCauley and Christiansen (2019) which memorizes frequently-occurring chunks to an LSTM recurrent neural network model to determine the degree to which emergent abstractions provided by this model help understand children's production behavior (Linzen et al., 2016). We find that the LSTM has better accuracy overall on a child utterance production task, but both models struggle as sentences become more complex, suggesting that models learning more structured grammatical representations may be necessary to describe children's syntactic acquisition.

C. Potter, E. Fourakis, E. Shafir, C. Lew-Williams: Effects of financial concerns on low-income parents' speech to children

Financial concern is constant in the lives of low-income families. We tested the hypothesis that financial concerns capture the attention of parents living in poverty and affect the language input they provide for their children. In our study, low-income parents responded to hypothetical scenarios that described challenging everyday situations that were either financial (Financial condition) or non-financial (Control condition) and then were asked to play freely with their children. Parents in the Financial condition produced significantly fewer words following the scenarios compared to baseline measures of language use, while parents in the Control condition showed no decrease. These results suggest that when low-income parents think about their scarce financial resources, they may become consumed to a degree that impacts their interactions with their children. Thus, we suggest that real-life burdens faced by parents in poverty may contribute to widely-discussed SES-related differences in language use and long-term outcomes.

B. Qin, M. van Heugten: Using eventive and stative verbs to examine children's fine-grained argument representations

Spoken language comprehension is an active process causing our mental representations of scenarios or events to be continuously updated as sentences unfold. However, it is unclear how detailed these representations are in young children. The current study examines 32- to 36-month-old English learners' representation of verb arguments. In particular, we used eventive (e.g., "destroy", "spill") and stative verbs (e.g., "love", "own") to examine whether children simply access the semantic prototypes of words or whether their representations go beyond a word's linguistic identity and include context-specific properties (e.g., a broken rather than intact bottle upon hearing "Susan dropped the"). The results of our eye-tracking study tentatively show that toddlers possess basic verb type knowledge that they rapidly integrate in their argument representation during real-time language comprehension. This suggests that their real-time language processing is fine-grained and reflective of real-world knowledge.

Station 17

J. Schneider, I. Arnon, A. Nguyen, K. Mendez, Z. Qi: Does prior language experience hinder statistical learning?

The ability to rapidly detect regularities and variabilities from speech input, also known as statistical learning (SL), is a foundational domain-general mechanism for first language acquisition (Saffran et al., 1996; Aslin & Newport, 2008). However, recent research provides support for a domain-specific linguistic entrenchment hypothesis that SL performance can be modulated by learners' prior language experience (Finn and Hudson Kam, 2008; Siegelman et al., 2018). The results of the current study showed that the ability to learn regularities from a novel language was hindered by prior language experiences that lack similarity to the language being learned, which support the linguistic entrenchment hypothesis. On the individual level, learners' language proficiency, but not perceived familiarity of the artificial language, relates to linguistic SL skills.

E. Schott, K. Byers-Heinlein: Bilingual and monolingual toddlers are sensitive to mispronunciations for familiar cognate and non-cognate words

Monolingual children encode familiar words with enough phonological detail to be sensitive to mispronunciations of familiar words from an early age. Bilingual children navigate two sets of speech sounds, and there is mixed evidence as to whether this impacts their encoding of phonetic detail in words. Some studies have found bilinguals to be less sensitive to mispronunciations, especially when the target word is a cognate. Others find similar sensitivities for bilingual and monolingual children. Our study compared mispronunciation detection in monolingual and bilingual toddlers (24–32 months), and whether bilinguals' phonetic sensitivities would be similar for cognate and non-cognate words. Both groups looked more at the target for correctly, compared to mispronounced, labels. There was no difference between cognates and non-cognates, regardless of language background. Our results indicate that monolingual and bilingual toddlers encode familiar words at a similar level of phonetic detail, despite bilinguals navigating a more complex phonetic environment.

Y. Shen, D. Avelar, A. Pasquarella, X. Chen, J. Xue, J. Zhang: Cross-language Transfer of Morphological Awareness on Chinese and English Reading Comprehension: A comparison of foreign language and second language learners

Morphological awareness has been identified as a significant predictor of word reading, vocabulary, and reading comprehension among monolingual and bilingual children. Previous research has shown that morphological awareness can be transferred from one language to facilitate reading another language. However, studies have not compared predictors of reading skills across different types of adolescent EL learners, specifically foreign language learners, recent-immigrants and long-term immigrants learning English as a second language. In our study, these three groups of participants completed parallel measure of word-level reading, vocabulary, morphological awareness, and reading comprehension (RC) in Chinese and English. Among other findings, Chinese morphological awareness transferred directly to English RC for recent and long-term immigrants, but not for Chinese EFL learners. Also, English morphological awareness transfers to Chinese RC only among recent immigrants. Theoretical and practical implications pertaining to reading acquisition, cross-language transfer and language instruction for diverse groups of ELs will be discussed.

Station 18

A. Soto-Corominas, J. Paradis, R. Al Janaideh, I. Vitoroulis, X. Chen, K. Georgiades, J. Jenkins, A. Gottardo: Socioemotional wellbeing influences bilingual and biliteracy development: Evidence from Syrian refugee children

This study explores whether child wellbeing affects oral language and literacy development of the L1 (Arabic) and L2 (English) of Syrian refugee children living in Canada (N = 97; ages 6-13; 24 months residency in Canada). Participants completed a vocabulary, morphology, word reading, and reading comprehension test for each language. Wellbeing variables were extracted from the Strengths and Difficulties Questionnaire, completed by their parents. Results showed that wellbeing predicted variance in vocabulary, morphology, and word reading in both languages, but no direct effect of wellbeing was observed on reading comprehension.

M. van Heugten, E. Barker, M. Tulloch: When eating socks becomes the norm: Children accommodate violations of selectional restrictions

Children's spoken language processing is remarkably mature from early on in life. In particular, children learn to incrementally combine words and anticipate upcoming linguistic material (e.g., expecting "cake" rather than "sock" when hearing "eat"). Here, we examine the nature of such anticipations. Using the Preferential Looking Procedure, we tested whether 4- and 5-year-olds take into account the reliability of selectional restriction implementations when processing spoken language. By manipulating the violations of selectional restrictions cues in filler trials, children were presented with a situation in which target nouns either reliably adhered to or often violated the selectional restrictions of verbs. Crucially, the experimental items were identical across the two groups and grammatically correct. Children were found to integrate their recent experience with violations of selectional restrictions. Children's processing of syntactic arguments is thus not only predictive, but also extremely flexible and adaptive in nature.

L. Wagner, K. McClain, S. Gryboski, R. Frush Holt: Hard is Hard: Connections between Early Learning and Later Processing in the Domain of Temporal Semantics

Three factors have been found to influence early acquisition of the temporal terms "before" and "after": Lexical item ("before" < "after"), Causality of connection between clauses ("She put on socks before shoes" < "She clapped before she jumped"), and the Match between the ordering of the clauses and events in the world ("She slept after she ate" < "She ate before she slept"). The latter factors are processing related and we investigated their ongoing influence. Sixty children from 7 – 12 years old participated in a timed sentence-to-picture matching task with target sentences fully crossing the factors influencing acquisition of "before" and "after". Although children were above chance on almost all items, all three factors continued to affect both accuracy and RT's in these older children. These results suggest that learning to deploy one's knowledge is a protracted process, and that there is continuity between acquisition and processing.

Station 19

T. Wang, A. Gabriele: Examining the use of implicit causality in pronoun resolution by native and non-native speakers

We investigate how Chinese learners of English use discourse cues in pronoun interpretation. We specifically focus on one discourse cue, the implicit causality (IC) bias encoded by the verb. In order to investigate the extent to which the subject/first-mention preference may be impacted by task, we used a three-sentence design to examine whether the first-mention bias is attenuated when both potential antecedents are introduced into discourse with equal prominence. The results suggest that learners displayed a weaker sensitivity to the IC bias, particularly in the intermediate learners. And the results do not suggest that learners rely on a first-mention bias under the new task manipulation. Rather, sensitivity to the IC bias is weaker in lower-proficiency learners. The results for the advanced learners show that differences between natives and learners in the use of discourse cues in pronoun interpretation are quantitative, not qualitative in nature.

S. Wang, Y. Kido, W. Snyder: Adjectival Resultatives and Novel Compounds in Children's English: Support for the Compounding Parameter

English allows various complex-predicate structures like resultatives, verb-particles, and make-causatives. Acquisition ages for most of them are highly correlated with ages of first novel N-N compounds (Snyder 1995; Stromswold & Snyder 1995). Snyder proposes that the complex-predicate structures all require the marked-setting of the Compounding Parameter (TCP). Yet, Stromswold & Snyder (1995) did not check resultatives, since they are very low-frequency. Here we address this gap with an experimental study and two corpus studies. First, since most complex predicates are acquired before age 3, we tested TCP's prediction that children will already comprehend resultatives as early as we can test with Truth Value Judgment (TJV). Second, we used corpus data to check the predicted acquisitional correlation between novel compounds and resultatives. Finally, we examined resultatives in parental speech. Findings from TVJ and children's spontaneous speech supported TCP's predictions. Few resultatives were found in maternal speech, which supports the 'parametric' strategy.

M. Weicker, P. Schulz: Not everything needs to be big or small: Evidence from children's interpretation of vague adjectives

We investigated children's interpretation of vague adjectives like big/small. Vague adjectives are characterized by 'borderline cases' (BCs, Kennedy 2007), i.e., objects that are difficult to judge. Adults have been reported to judge BCs for example as big and small ('gluts') and as neither big nor small ('gaps'), with a preference for the latter (Égré/Zehr 2018). Our study examined whether children detect BCs, whether they interpret them as 'gluts' or as 'gaps', and whether interpretation patterns change with age. Three- to five-year-old German-speaking children (n=43) and adults (n=26) were tested with a picture-choice task. We found that like the adults most children were able to detect BCs: specific objects were selected as neither clearly big nor clearly small. Adults consistently treated BCs as neither big nor small. Interestingly, some children allowed BCs to be big and small, which we argue reflects an intermediate stage towards target-like interpretation of vague adjectives.

Station 20

Q. Xu, M. Chodorow, V. Valian: The structure of very early multi-word utterances

How early do children produce multi-word utterances? Most research has claimed that they appear around age 20 months, but with little empirical evidence. Do very early multi-word utterances have syntactic structure? The answers to both questions will constrain theories of acquisition. In this study, we look at the distribution of utterances of various lengths as a function of age to a) establish the development of multi-word utterances, b) develop a rule-based classifier to automatically classify utterances as "structured" or "unstructured", and c) analyze the growth of the proportion of structured multi-word. Our results show that children Multi-word utterances appear earlier than previous studies have claimed, and most early multi-word utterances are structured.

Y. Zhang, S. Liu, C. Yu: Quantifying noun-object and verb-action co-occurrences in naturalistic contexts

In this study, we investigated the word-learning problem by quantifying word-referent co-occurrence statistics in parent-child interaction from the learner's perspective, and comparing statistical properties of noun-object and verb-action co-occurrences during parent-child naturalistic toy-play interactions. We focused on parent speech and infant eye-gaze. We first identified noun and verb utterances in parent speech. We then coded whether the named target or the corresponding action was in the child's view

within an utterance window. If so, whether infants attend to the intended referent. Our results demonstrate that noun-object co-occurrences are more frequent than verb-action co-occurrences. This is possibly because named objects are more likely to stay in the child's view for a longer period of time but actions tend to happen briefly, providing fewer co-occurrences in time for the child to learn verbs. However, when the corresponding action was in view when hearing a verb, infants were more likely to attend to the action. The quantitative results derived from gaze data provide new evidence at the attentional level on early learning of nouns and verbs.

[Back to top]

Saturday posters

Station 1

R. Abu-Zhaya, I. Arnon: Revisiting the role of single-word utterances in language learning: A developmental perspective

Speech directed to infants includes single-word utterances (SWUs), which seem to be dominated by nouns, and involve repetitions of previous maternal utterances. SWUs may assist infants in segmenting the speech stream and seem to facilitate learning: words that appear more frequently in isolation are produced earlier and learned better in experimental settings. This project offers a developmental investigation of SWUs using longitudinal data from 120 mother-child dyads recorded between 7- and 24-months (the Newman and Ratner corpus from the CHILDES database). We extracted all SWUs produced by the mother from each interaction, alongside their morphological tagging, and the previous two utterances (to see whether maternal SWUs were a repetition of the child's utterances). The proportion of maternal SWUs remained stable across ages (~16%). However, the amount of maternal SWUs that are a repetition of the child's prior productions changed with age, suggesting a possible change in the function of SWUs.

K. Aljenaie, A. Benmamoun: The acquisition of Kuwaiti Arabic Questions: The Movement and In-Situ Strategies

The current study is the first systematic longitudinal investigation of the acquisition of questions in Arabic with a relatively large subject pool. This paper examines the acquisition and use of wh-questions in the spontaneous speech of five Kuwaiti children (1;7-2;6). The Kuwaiti Arabic (KA) variety uses two strategies: wh-movement and wh-in-situ. This raises the question of which strategy emerges first in KA child language. The results show that the movement strategy predominates in children's questions with 97% of all the questions. The results are consistent with similar results from other languages where both the movement and the in-situ options are available, which raise questions about why the movement option, which has been previously been characterized as costly, is the preferred option in children's questions.

S. Antetomaso, M. Elsner: Child production of the Japanese vowel length contrast

Although Japanese 2-year-olds distinguish between short and long vowels in production, they do not yet reach adult-like ratios of duration. Previous work does not specify whether children are adult-like in their production of the length distinction across lexical items or vowel qualities. If children first distinguish vowel length only for particular vowel qualities or particular lexical items, it suggests their mental representation of vowel categorization does not yet include contrastive length. We examined Japanese vowel productions of adults and children ages 2-5 and conducted a mixed-effects regression analysis of vowel duration as a function of phonological length, vowel quality, speaker age, corpus word frequency and whether the word is part of a minimal pair. All age groups reliably distinguish long from short vowels, however there is no evidence that age interacts with vowel quality or word type. This suggests a general representation of contrastive length emerges early in language development.

Station 2

M. Barbir, N. Havron, S. Recht, A. Fiévet, A. Christophe: When one learning method is both a propeller and an obstacle: The effect of translation on second language acquisition in children

A common method of teaching vocabulary in the classroom is by way of translation: telling a learner explicitly, for example, that neko means cat. Yet, translation presupposes a certain level of metalinguistic capacity. This capacity develops notably when a child learns to read, and remains largely immature in illiterate adults. Translation may therefore differentially affect literate and pre-literate children. The current study investigates the effect translation has directly on vocabulary acquisition and indirectly on morphosyntax acquisition, in pre-literate and literate children. We find that translation is a boon for literate children, but a bane for pre-literate children. Our results provide experimental evidence that translation may necessitate capacities developed when a child learns to read, and suggest that acquisition may be a malleable faculty that evolves through development.

C. Bill, K. Yatsushiro, U. Sauerland: Asymmetries in Children's Negative Determiner Production

Standard English and German can express non-existence solely with negative determiners no and kein-(e) ('no'), whereas languages like Russian and Polish can only express non-existence using both a negative determiner and sentential negation. For English, two different analyses have been proposed: The negative quantifier analysis, according to which no is a negative generalized quantifier and the silent concord analysis, according to which no is a positive indefinite that indicates the presence of a silent sentential negation (not). The two analyses make different predictions concerning the derivational complexity of no in subject vs. object position. The negative quantifier analysis predicts that no should be less complex to interpret in the subject position than the object position, whereas the silent concord analysis predicts the opposite. We present production data from German-speaking children showing that they avoid producing no in subject position, in-line with the predictions of the silent concord analysis.

S. Bjornsdottir: Predicting children's ineffability: grammatical gender in Icelandic

Icelandic has a 3-gender system (masculine, feminine and neuter). Three suffixes in the nom.sg. are predictive of gender assignment in Icelandic, -r and -i for masculine, -a for feminine. However, approximately a third of nouns in Icelandic child-directed speech do not bear a suffix and are syncretic between all three gender classes. The Tolerance Principle (Yang, 2016) was used on noun types in a corpus of Icelandic child-directed speech (Sigurjónsdóttir, 2007). The result of a TP-analysis showed that in spite of the statistical majority of neuter nouns, the number of masculine and feminine noun types with no gender-predictive suffix was too great for neuter to be a productive gender default. This prediction was tested experimentally. The results showed that children were categorical in their gender assignment with novel nouns with a gender-predictive suffix, but unsystematic and uncategorical with novel nouns in the absence of a gender-predictive suffix.

Station 3

L. Brown, D. Gagne, A. Lieberman: Language Modality During Interactions Between Hearing Parents Learning ASL and their Deaf/Hard of Hearing Children

Approximately 95% of deaf/hard of hearing (D/HH) children are born to hearing parents, many of whom do not know sign language. ASL is often recommended for use among these families. However, there is little research regarding hearing parents who attempt to use an ASL/English bilingual approach that uses each language individually,

in contrast to approaches that advocate ""simultaneous communication."" The current study examined language use in hearing parents who have made a commitment to learning ASL and who also use spoken English to communicate with their D/HH children. Findings revealed that these parents and children largely kept ASL and English separate, suggesting that parents understood the importance of a bilingual approach. This study provides a first step in describing the feasibility of using ASL and spoken language for deaf children from hearing families, and has implications for parents, clinicians, and researchers.

A. Chaouch-Orozco, J. González Alonso, J. Rothman: Word properties can help explain the masked translation priming asymmetry

We explored the masked priming asymmetry observed in lexical decision tasks (LDT) when unbalanced bilinguals are tested, and non-cognate translation equivalents are used. The asymmetry consists of priming being significantly larger for L1 primes on L2 targets than vice versa (L2 primes-L1 targets). We tested 60 Spanish-English unbalanced bilinguals in a masked translation priming LDT (500 ms mask – 60 ms prime). The participants' L2 proficiency (upper-intermediate to upper-advanced) and factors related to their linguistic background were treated as continuous variables in mixed-effects models (Baayen et al., 2008). Results showed a priming asymmetry (47 ms vs 39 ms, p<.001). Crucially, word frequency modulated the L2-L1 priming effect. The BIA+ model, under which slower L2-word processing prevents L2 primes from activating their L1 counterparts, can best accommodate the results.

C. Chen: The acquisition of Mandarin relative clauses and binding by heritage speakers and second language learners

This study examines whether early age of acquisition confers an advantage to heritage speakers relative to second language learners, and whether this depends on the linguistic domain. We found a slight heritage advantage on relative clauses, but not on long-distance binding, consistent with relative clauses being earlier-acquired than long-distance binding.

Station 4

H. Chen, D. Lee, R. Lai, L. Luo, T. Nazzi, H. Cheung: Early phonological biases in early word learning: the case of a tone language, Cantonese

Consonants and vowels have been considered to carry different functions in language processing, vowels being more important for prosodic/syntactic processes and consonants for lexical processes (Nespor et al., 2003). The C-bias in lexical processing has been found in adults and infants of non-tonal languages. Would it extend to tonal languages, which have tones that are acoustically more linked to vowels? We investigated this issue by using an eyetracker to test whether Cantonese-learning 20- and 30-month-olds can learn pairs of words contrasted either by a consonant or a vowel. Our findings show that, by 30 months at least, Cantonese-learning toddlers are sensitive to minimal phonological contrasts when learning new words, additionally showing a Vowel bias. This brings to a younger age emerging evidence that the interaction between phonological acquisition and lexical processing in tonal languages leads to a different trajectory than the one found for non-tonal languages.

J. Choe, K. Deen: Pronoun Advantage in L2 Relative Clause Processing

We present the results of an online self-paced reading task of L2ers of English reading subject and object relative clauses (SRCs, ORCs). We manipulate the kind of nominal inside RCs: lexical NP and pronoun, and find that the pronoun significantly improves the processing of ORCs, showing that L2ers, like native adults, are sensitive to discourse accessibility of referents in processing long-distance dependencies.

S. Choi, T. Ionin: Chocolates, peas, and spinaches: Processing flexible nouns in a second language

This study investigates the acquisition and processing of English flexible nouns by L2-learners whose L1s do not obligatorily mark the count/mass distinction. Flexible nouns can be either count or mass, depending on the language (spinach: mass in English, count in French) or within a language (chocolate(s)). We administered a self-paced reading task and a grammaticality judgment task to 33 L1-Chinese and 32 L1-Korean L2-English learners and 32 native English speakers. The results show that L2-learners (mis)analyze nouns that are flexible cross-linguistically (spinach) as flexible in English. We argue that learners map objects to count nouns, and substances to mass nouns. Flexible nouns can denote either substances (the food-substance in spinach) or objects (a bunch of spinach), hence learners allow them to occur in count (plural) or mass (bare singular) form. Although Korean but not Chinese has (optional) plural marking with inanimate nouns, there is no L1-transfer in this domain.

Station 5

B. Davies, N. Xu Rattanasone, A. Davis, J. Millasseau, K. Demuth: Unilateral Hearing Loss and the Acquisition of Plural Morphology

Pre-schoolers with hearing loss in both ears (bilateral HL) often experience delays in acquiring spoken language, yet little is known about the effects of HL in one ear (unilateral HL). Pre-schoolers with normal hearing (NH) are able to comprehend plural morphology with novel words (i.e., teps = tep+s) but children with bilateral HL cannot. The present study tested plural comprehension in children with unilateral HL using a novel-word forced-choice task. Participants were 12 children with unilateral HL (M=4;1, 3;0-5;3), who were compared to aged-matched children from a previous study: 127 NH (M=4;1, 3;0-5;4) and 23 with bilateral HL (M=4;0, 3;2-5;0). It was found that the plural comprehension of children with unilateral HL were no different to those with bilateral HL. However, like their NH peers, their comprehension of the plural showed improvement with age, suggesting that pre-schoolers with unilateral HL have emerging representations of plural morphology.

H. Delage, S. Durrlemann, E. Stanford: Training working memory in children with DLD: What impact on syntax?

Some theories of Developmental Language Disorder (DLD) explain the linguistic deficits observed in terms of limitations in cognitive systems such as working memory (WM). The goal of this research is to demonstrate that a tailored WM program can improve syntactic performance of children with DLD. We created a novel iPad application consisting of five original activities that train verbal WM. These activities were specifically designed to train the components of WM that have been shown to be the most predictive of performance on tests assessing complex syntax. Our results show significant improvement for the thirty children (aged 6-12) enrolled in the WM training, for both WM and syntax. This progression is not seen for the twenty children of the same age following an alternative training, which proves the specificity of our WM training. The logical next step would be to incorporate the training into the therapy of children with DLD.

J. Edwards, R. Pomper, J. Saffran, S. Ellis Weismer: Effect of coarticulation on language processing for children with autism

Phonological development is a relative strength for children with autism spectrum disorder (ASD). Typically developing children use coarticulatory information on determiners (e.g., ""the ball"") to more quickly fixate an object when it is labelled. In this experiment, we examined whether children with ASD will also take advantage of coarticulatory information in speech processing. Our sample included 32 children with ASD (mean age 44 months) and 32 children with TD (mean age 26 months) who were matched in receptive language ability. We found that children in both the ASD and TD group were faster to fixate a labelled object when the determiner contained

coarticulatory information compared to when it was neutral. Moreover, there is mixed evidence suggesting that children with ASD may be more sensitive to coarticulation than children with TD.

Station 6

E. Emond, R. Shi: Grammatical principles guide infants' interpretation of noun phrase references

In an eye-tracker study we investigated 30-month-olds' understanding of the syntactic principles that constrain the possible referential meanings of reflexives and pronouns. Namely, reflexives must co-refer with the antecedent within the local domain (e.g., ""he-i washes himself-i""), and pronoun reference must be disjoint from its local antecedent (e.g., ""he-j washed him-i""). Trials in Experiment 1 displayed picture pairs depicting self-directed versus other-directed meanings of target verbs, while a reflexive sentence (e.g., il-i se-i lave "he-i washes himself-i") or a pronoun sentence (e.g., il-j le-i lave "he-j washes him-i") was presented. Results: infants looked significantly more towards the self-directed event upon hearing reflexive sentences, and towards the other-directed event for pronoun sentences. In Experiment 2 these sentences appeared as sub-clauses in complex sentences. Infants interpreted correctly the participant roles for the verbs in the reflexive/pronoun sub-clauses. Taken together, our results demonstrate that 30-month-olds understand binding principles, which constrain their form-to-meaning mapping.

N. Ferjan Ramirez, P. Kuhl: Second Language Learning in Early Childhood: A Follow-Up Language Intervention in Infant Education Centers in Madrid

Infancy represents a unique window of opportunity for foreign language learning. However, a key question is: how much and what kind of second language (L2) exposure is needed to ignite learning in infant education (school) settings? We conducted a foreign language (English) Intervention in infant education centers in Madrid, examining the amount and type of L2 exposure, and children's SES, as factors in learning. Intervention infants (age 9-33 mo) experienced either 18 or 36 weeks of English exposure, through daily, 45-minute long, group sessions with native speaking tutors. Age-matched Controls in the same schools received Madrid's standard bilingual program. Intervention children outperformed Controls and showed rapid gains in English comprehension and production. Spanish comprehension was not affected by participation in the Intervention. SES was not a significant factor in English learning. Infants' foreign-language skills advance quickly in school using this research-to-practice curriculum.

H. Forsythe: Resolving pronouns with multiple cues: Children use pragmatics before morphology

Pronouns encode categorical information in the form of grammatical person, number, and gender, but they are also influenced by probabilistic information from the surrounding context. The pragmatic relations expressed by connectives (ex. "the teacher waves at the girl {because vs. and then} she is leaving"), and the speaker's choice of pronominal form (weak vs. strong pronoun realization) both predictably bias adult pronoun preferences. Since these different sources of information may conflict, a rational strategy is to prioritize the more statistically reliable categorical cues (e.g. grammatical number) over less reliable probabilistic cues (e.g. connectives, pronominal form). We provide evidence from Spanish that, surprisingly, children initially rely on probabilistic pragmatic relations, only later on switching to the more statistically reliable cue of grammatical number.

Station 7

A. Götz, A. Krasotkina, G. Schwarzer, B. Höhle: Neural correlates of non-native lexical tone and vowel discrimination in 9-month-old German infants and adults: An ERP study

Previous behavioral experiments have shown that perceptual sensitivity for lexical tones declines in infants learning non-tone languages. The aim of the study is to examine whether neural responses to non-native contrasts can be maintained in the absence of behavioral discrimination. We conducted ERP-experiments with 9-month-old German-learning infants and German adults using a double oddball paradigm. The native-like deviant was a vowel contrast /sɛ/ vs. /si/ and the non-native deviant was the Cantonese high-rising vs mid-level tone contrast. Our results show that in adults the vowel and tone deviant elicited a mismatch negativity. In infants the tone contrast elicited a positive MMR whereas no overall effect of the vowel contrast was observed. An analysis of individual responses revealed that some infants showed a positive and others showed a negative MMR. Positive responses have been interpreted as less mature response. Our findings might be an indication for individual variation in perceptual reorganization.

R. Holt, L. Bruggeman, K. Demuth: Visual cues improve speech processing speed for children with hearing loss

Processing spoken language can be slow and effortful for children with hearing loss. We therefore examined whether speech processing can be made faster and/or easier for these children via the addition of visual speech cues (the speakers' facial movements) to the auditory signal. Twelve 7-11-year-old children with cochlear implants or hearing aids, and normal-hearing controls, completed a phoneme monitoring task with concurrent pupillometry. When visual cues were available, processing was significantly faster across both groups (quantified by both reaction times and latency of peak pupil dilation), compared to when visual cues were absent. While children with hearing loss did not significantly differ from the control group, post-hoc analysis indicated that children who use cochlear implants and children who use hearing aids may differ in the degree to which they benefit from visual speech cues.

H. Huang, S. Crain: Wh-words: Universal quantifiers or existential quantifiers in child Mandarin?

Wh-words have been analyzed as existential quantifiers and as universal quantifiers. Three experiments were conducted to adjudicate between these two accounts. These experiments investigated Mandarin-speaking children's understanding of the wh-word shenme 'what'. Using a Truth Value Judgment Task, Experiment 1 examined whether the truth conditions that Mandarin-speaking children assigned to the wh-word shenme 'what' were similar to the existential expression renhe 'any' or to the universal quantifier mei 'every' in the antecedent of conditional statements. Experiments 2 & 3 investigated the truth conditions children assigned to sentences with shenme, renhe or mei in Yes/No questions, using a Question-Answer Task. The findings revealed that both Mandarin-speaking children and adults accepted sentences with shenme 'what' in the same circumstances as sentences with renhe 'any,' but rejected sentences with the universal quantifier mei 'every'. We concluded that Mandarin speakers analyze shenme 'what' as related in meaning to an existential quantifier.

Station 8

I. Hurtado, S. Montrul: Examining the effect of structural priming on three different populations: Spanish native speakers, Spanish L2 speakers, and Spanish heritage speakers

A structural priming was conducted using the Spanish dative clitic alternation (Juan le dio un libro a Laura vs. Juan dio un libro a Laura) in three groups of speakers: 23 Spanish native speakers, 24 Spanish heritage speakers, and 28 Spanish L2 speakers (L1 English). All participants completed a baseline picture description task in order to measure their average rate of dative clitic constructions. Then, they completed a treatment in which they were primed to produce a higher number of dative clitic constructions via elicitation. Lastly, they completed two picture description tasks as posttests to assess long-term effects of structural priming (the first one five minutes

after the treatment, and the second one a week later). Results showed that priming was effective for all groups of speakers and for all phases, since participants produced significantly more clitic constructions in the treatment and the posttests than in the baseline.

A. Irani, K. Schuler: Children can acquire verb argument structure with sufficient positive evidence.

We show that children learn verb argument structure from positive evidence in the input, rather than from indirect negative evidence. We test two theories of language learning: the Sufficiency Principle (Yang 2016) and a frequency-based entrenchment approach (Goldberg 1995) using the case of the causative alternation. Our study shows that children generalize from positive evidence in the input, while following the Sufficiency Principle, as opposed to generalizing from indirect negative evidence. Contrary to previous findings (e.g., Ambridge et al. 2008), hearing a verb used frequently in one structural frame does not result in entrenchment of the verb in that structure. No frequency effects indicating entrenchment-based learning were found.

K. Iwamoto, R. Mazuka, I. Yuen, K. Demuth: Learning language-specific rhythm: English vs. Japanese

In this study, we were interested in investigating how children become more adult-like in controlling word duration as a function of crosslinguistic differences in rhythmic structure, e.g., stressed-timed Australian English vs. mora-timed Japanese. The speech of children (9- and 13-year-olds) and adults were analysed with 3 types of novel words: CV.CV, CVV.CV, CV.CV.CV. In the English data, there was no effect of age, suggesting that English-speaking children have attained adult-like syllable/stress timing control by 9-years. In contrast to the English results, the Japanese data revealed a significant effect of age, word-type, and age-by-word-type interaction. Thus, unlike previous studies using global measures, our findings suggest the reported late control of word duration may vary as a function of language, with English-speaking children becoming adult-like earlier than their Japanese peers. In sum, prosodic units (syllable/mora) within a word and language-specific rhythmic properties appear to influence when control of duration becomes more adult-like.

Station 9

E. Ko, J. Kim: Korean Mothers Place Nouns in the Utterance-final Position Despite the SOV Word Order

We investigated effects of the Korean verb-final word order on mothers' word teaching strategies based on comparative corpus analyses of American and Korean mothers' infant-directed speech and on a word-teaching experiment involving infant and adult listeners. Results show that Korean mothers place nouns at the utterance-final position despite the verb-final word order, using syntactic strategies of tag-repetition (repetition of the target word at the end of an utterance, e.g. pap mek-e, pap 'rice eat, rice') and scrambling (moving the target word to the end of an utterance, e.g. ep-ne, pap-i 'gone, rice-NOM'). Our findings suggest that Korean mothers might have tacit knowledge of the potential benefits associated with placing the target word in utterance-final position such as prosodic prominence and recall advantages, and corroborate the importance of the right edge position in language learning.

F. Kobayashi, S. Chen, L. Rosenstein, M. Hackl: Comprehending and: Development Path of English Conjunction in Child Language

""And"" presents a challenging case for language learning because of its abstract meaning and cross-categorial flexibility. Nevertheless, previous studies report that even 2-yearolds use and productively in various syntactic environments (Sentence-, VP-, & NP-and), leaving open the possibility that and is acquired as an intrinsically cross-categorial operator. We present evidence from a comprehension study to suggest otherwise, specifically that Sentence-and is easier to comprehend in an adult-like fashion for younger children than NP-and.

E. Lau, V. Yip: The curious case of the obligatory agent: Acquisition of passives (bei/jiao/rang/gei) in Mandarin

Previous studies found that Cantonese children comprehend passives as early as 3;0, while Mandarin children continue to experience difficulty even at 5;0, similar to many other languages, e.g. English. The unusual result in Cantonese leads to the suggestion that the obligatory presence of the agent in Cantonese passives (but not the Mandarin passives) plays a critical role in its early acquisition.

This study reports on the first ever investigation of the acquisition of all four types of passives in Mandarin: in addition to the oft-studied bei-passives, we investigate jiao-, rang- and gei-passives. All four passive types are included because two of these four types require an overt agent, like Cantonese, allowing us to test if the obligatory agent is indeed crucial.

We find evidence for an interplay of two factors that together account for the order of acquisition of these passive patterns: frequency and whether the agent is obligatory.

Station 10

H. Lee, H. Song: Even very limited exposure to foreign languages through social interaction can increase 4-year-old's acceptance of different labels across different languages

The present study examines whether limited exposure to foreign languages in a linguistically homogeneous environment influences children's understanding that an object can have different labels across different languages. Four-year-old Korean preschoolers watched a video of two speakers. In the video, the Korean and Spanish speakers labeled three familiar objects in their own language. During the test trials where a novel object was presented, the Korean speaker labeled the object by a novel Korean word while the Spanish speaker labeled it by a novel Spanish word. Then, children were asked if they would accept only one label or both. Children with greater amounts of exposure to a foreign language in social settings were more likely to endorse both Korean and Spanish labels for an object. These results suggest that even very limited exposure to foreign languages through social interaction can enhance preschoolers' willingness to learn a non-native vocabulary.

D. Li, X. Yang, T. Roeper, M. Wilson, R. Yin, J. Kim, E. Merritt: Acquisition of recursion in child Mandarin

The present study investigates 4-to-6-year-old Mandarin-speaking children's comprehension of one-to-three-level recursive possessives by an act-out task. It is found that all children demonstrated comprehension of recursive possessives with no between-subject difference, but their accuracy rate was negatively affected by recursion level. When children made errors, they tended to interpret recursion as conjunctive structures or to drop one or more embedded elements, and younger children were especially inclined to drop elements. This supports previous studies showing both conjunction and reduction as recursion-avoidance strategies. The results suggest earlier acquisition of recursive possessives in Mandarin than in English, which is consistent with the idea that overt marking facilitates acquisition of recursion. The differences in parametrically dominant branching direction between English (right) and Chinese (left) may also play a role in causing the English/Chinese variation in the point of acquisition.

L. Lindsay, J. McLean, K. Messenger, H. Branigan: Lexico-syntactic representations in preschoolers and adults: similar structure but differential susceptibility to syntactic experience

We report three syntactic priming experiments investigating the integration of lexical and syntactic representations in preschoolers: Are their representations structured similarly to adults, and are they affected by experience in the same way? We show that abstract syntactic representations are not dependent on existing lexical representations but are nevertheless linked to lexical representations in a way that is consistent with adult models of lexico-syntactic representation. Moreover, we provide striking and novel evidence that children are more strongly affected by abstract syntactic experience than adults.

Station 11

W. Ling, T. Grüter: Learning words with lexical tone: Is manipulation of attentional focus beneficial?

This laboratory-based auditory word learning study investigates whether focusing the contrastiveness of a cue (e.g., tone) in training increases learners' use of that cue in subsequent lexical processing and improves overall learning outcome. L1-English speakers without tonal language experience were trained on novel words in three cue-focus groups: tone-focus (e.g., pa1, pa2, pa3), vowel-focus (pa1, pu1, pi1), and control group (pa1, ti3, pu2), and tested in the same 2-alternative forced-choice task to identify the referent of each word. This task contained 3 types of minimal-pair trials: tone-pair, vowel-pair, and consonant-pair. Results show respective benefits when comparing the tone- and vowel-focus groups, while neither of theses groups outperformed the control group. These findings thus suggest that the benefits of manipulating attentional focus towards an isolated cue are limited, and may in fact be detrimental to the learning of other cues, presumably due to attentional focus drawn away from those other cues.

Z. Mai, J. Zhou, V. Yip: Sentence-final particle ne in child heritage Mandarin (2;00-3;05)

It is commonly assumed that the amount of dual input that child heritage language speakers have access to is reduced compared to their monolingual counterparts, which may lead to vulnerabilities in selective aspects of the target grammars. This study analyzes the language of child Mandarin speakers and their parents to investigate effects of input reduction on the sentence-final particle ne in Mandarin. We examined 1302 ne-utterances spontaneously produced by three American-born child heritage speakers of Mandarin and their parents in parent-child interactions from 2;00 to 3;05, and compared them with 479 ne-utterances by two age-matched monolingual children and their parents in China. The results show that despite assumed reduced input in heritage language acquisition and the optional use of the SFP ne, the heritage children in fact hear the target SFP more frequently than their monolingual counterparts, which potentially compensates for the reduced amount of input.

S. Maillot, N. Havron, E. Spelke, I. Dautriche, P. Ashur, A. Christophe: Fourteen Month-Old Infants' Understanding of Sentences

By 14 months, infants seem to understand simple sentences. If a parent asks the child whether she would like to eat a banana, she is likely to answer appropriately. Are infants actually connecting the words in a sentence to understand it? We presented 14-15-month-old French-learning infants with incongruencies that can only be detected by putting together all components of the sentence. Infants saw a video and heard a sentence (e.g., ""Teddy wants to eat the banana""), and then watched two outcomes, a congruent video (Teddy eating the banana), and a video with either an incongruent noun (Teddy eating an apple), or an incongruent verb (e.g., Teddy cutting the banana). Infants were surprised when Teddy performed the wrong action, but not when Teddy performed the correct action on the wrong object. Thus, although in everyday life infants appear to understand sentences, they may depend on a partial analysis of sentence meaning.

Station 12

L. Malkin, K. Abbot-Smith: 'Flexing the description': explaining performance difficulties in how autistic children adapt referring expressions for listeners

Autistic children struggle to adapt referring expressions in accordance with listeners' informational needs. These difficulties may be related to 'cognitive flexibility', known to be impaired in autism. To explore this proposal, well-matched autistic and typically-developing children completed a game requiring the labeling of animals. Cognitive flexibility demands were manipulated by requiring either the same referring expression be used for a given animal (no-switch condition) or a range of different referring expressions be used for a given animal (switch condition). Autistic children were significantly less likely to use an appropriately informative referring expression in the 'switch' than the 'no switch' condition. Whilst typically-developing children followed a similar pattern, the difference in performance between conditions was non-significant for this group. Autistic children's difficulty in producing appropriately informative referring expressions appears at least partly related to difficulties in cognitive flexibility, namely the ability to use different referring expressions for the same referent.

K. Matiasovitsová, F. Smolík: Sentence imitation with masked morphemes in Czech: the role of memory and morpheme frequency

The study tested 17 children with language impairment (LI) and 17 vocabulary-matched children using a sentence imitation task. Each stimulus sentence recording contained a verb or noun inflectional morpheme that was removed and replaced by a coughing sound. Control measures for vocabulary and phonological memory were also administered. The overall accuracy of the imitations and the ability to fill in an appropriate morpheme was evaluated. Results revealed that overall sentence imitation accuracy is a sensitive marker of language impairment and is related to vocabulary skills even when controlling for memory. The pattern of filled-in morphemes showed lower accuracy of LI children in finding grammatically appropriate morphemes. About 20% of the inappropriate fill-ins involved changes in more than one grammatical feature, both in children with LI and controls. Most inaccurate fill-ins were higher-frequency forms than the target. The results lend limited support to Leonard's morphological richness account but contain many counterexamples.

M. Miao, X. Yang, R. Shi: Mandarin-learning two-year-olds' online processing of classifier-noun agreement

Mandarin is a classifier language where classifiers are obligatory in numeral-plus-noun expressions. Many classifiers have inherent semantic features that agree with the semantic features of the noun within the noun phrase. Our study examined younger children's sensitivity to classifier-noun agreement involving shape classifiers and count nouns. We tested 32 Mandarin-learning 30-to-32-month-olds in an IPLP online comprehension experiment. Each child was presented with classifier-noun match trials and classifier-noun mismatch trials. In each trial, two side-by-side objects were displayed, one representing the noun that was named in the auditory stimuli, and the other a distractor object. An adjective modifier (i.e. caisede 'colorful') was included before all nouns. If children process classifier-noun agreement in a predictive manner, looking to the noun-target in match and mismatched trials should be different. Our results demonstrate that Mandarin-learning 2-year-olds represent classifier-noun agreement. Furthermore, they process semantic features of classifiers and nouns incrementally and predictively during online comprehension.

Station 13

I. Nowenstein, S. Sigurjonsdottir, C. Yang, A. Ingason, J. Wallenberg: The Meaning of Case: Productivity, Morphosyntactic Bootstrapping and Icelandic Datives

Using corpora and experimental data on the acquisition of Icelandic datives, we provide qualified support for the (morpho)syntactic bootstrapping hypothesis (Landau &

Gleitman 1985, Gleitman 1990, Naigles et al. 1993) and demonstrate that the nested productivity of non-default case marking rules can be accounted for with Yang's (2016) Tolerance Principle. Building on the fact that Icelandic has a rigid word order, no argument drop and robust semantically-driven dative productivity, we show that children acquiring the language are able to use case as a cue for verb meaning, forming the basis for case marking rules. Overall, we provide support for a morphosyntactic bootstrapping account that does not exclusively rely on universal cues, since a learning model detects the available systematic mappings of form and meaning (Yang 2016). The results have implications for current extensions of the (morpho)syntactic bootstrapping hypothesis and research on rule formation and productivity in child language.

J. Oetting, J. Berry, K. Gregory, A. Riviere, J. McDonald: Specific language impairment across dialects: measures of tense and agreement with dialect-informed probes and strategic scoring

In rural African American English (AAE) and Southern White English (SWE), we examined whether children with specific language impairment (SLI) overtly mark tense and agreement structures at lower percentages than typically developing (TD) controls, while also examining the effects of dialect, structure, and scoring approach. The participants were 106 kindergartners, the tasks were four dialect-informed probes targeting tense and agreement, and the three approaches (unmodified, modified, and strategic) varied in the scoring of nonmainstream English forms and responses coded as other. Results were that the unmodified and strategic scoring approaches consistently showed lower percentages of overt marking by the SLI groups than by the TD groups; this was not always the case for the modified scoring approach. With strategic scoring, classification accuracy (SLI vs. TD) was highest when dialect-specific cut scores were employed. Strategic scoring of dialect-informed probes targeting tense and agreement holds promise for clinical practice.

Station 14

T. Okuma: L2 acquisition of the specificity of Japanese numeral quantifiers

This study investigates L1 Chinese speakers' acquisition of the specific/non-specific distinction in Japanese numeral quantifiers (NQs). Japanese NQs can appear in either a prenominal or floating position, and the latter are subject to a semantic restriction: The floating NQs only have a non-specific reading, while the prenominal NQs have either a specific or non-specific reading. A forced-choice preference task was administered to native Chinese speakers studying Japanese and native Japanese non-linguists to clarify two points: (i) whether the specific/non-specific distinction between prenominal and floating NQs truly holds in the grammar of native Japanese non-linguists; and (ii) whether L1 Chinese speakers of L2 Japanese can acquire the specific/non-specific distinction that their L1 does not have. The results suggest that (i) the specific/non-specific distinction holds, and (ii) the advanced L2ers are indistinguishable from the native Japanese non-linguists in interpreting floating NQs, suggesting that L2ers acquire subtle interpretative differences between different L2 forms.

N. Orita, A. Suzuki, Y. Matsubayashi: The input to verb learning in Japanese: picture books for syntactic bootstrapping

This study investigates the feasibility of syntactic bootstrapping (Gleitman 1990 among many) in a radical argument drop language, Japanese. In Japanese, argument noun phrases and case markers that typically signal grammatical relations to verbs may be omitted if they are recoverable from the context. While corpus studies have shown that arguments and case markers are very frequently absent in Japanese child-directed speech (Rispoli 1995, Matsuo et al. 2012), behavioral experiments have reported that Japanese children are able to use both the number of arguments and the case markers to infer the meaning of novel verbs (Matsuo et al. 2012, Suzuki & Kobayashi 2017). This gap between impoverished input and learners' ability to use syntactic cues is still unsolved. We examine whether the Japanese input really lacks syntactic cues for verb learning by examining a different form of input, picture books. The analyses show that Japanese picture books contain more overt arguments and accusative case markers, and that these cues have significant influence on the prediction of verb transitivity. These results demonstrate that a different form of input may contain different kinds and amounts of evidence, suggesting the importance of examining a variety of input available to learners.

S. Otani, A. Nicolae, M. Asano, Y. Miyamoto, K. Yatsushiro: The relative scope of connectives and negation in Japanese children

Japanese disjunction (ka) and conjunction (...mo...mo) take obligatory wide scope with respect to negation (Szabolcsi 2002, Goro 2007). Goro and Akiba (2004; henceforth G&A) observe, however, that children appear to interpret disjunction below negation, unlike adults, although their interpretation of conjunction is adult-like. Tieu et al. (2017) observe that children assign disjunction a conjunction-like interpretation when two alternatives are presented in the context, whereas a follow-up experiment by Skordos et al. (2018) observes that when a third alternative is introduced, the inclusive reading becomes more accessible. In this paper, we present a follow-up experiment to G&A, providing three rather than two alternatives in the context, per Skordos et al., and argue that children assign wide scope interpretations to both disjunction and conjunction.

Station 15

L. Perkins, N. Feldman, J. Lidz: Mind the Gap: Learning the Surface Forms of Movement

Language learners must identify both local and non-local syntactic dependencies. An English learner, for example, must identify that ""What did you eat?"" contains a wh-dependency, where the 'moved' argument ""what"" acts non-locally as the verb's object. Previous literature suggests that this learning takes place by 20 months, whereas infants show knowledge of verb transitivity earlier, at 15-16 months. We provide a computational account for this developmental trajectory. Our model categorizes sentences based on features found in their surface forms, and uses prior verb transitivity knowledge to infer which sentence 'categories' contain locally missing arguments of verbs. It achieves above-chance accuracy on identifying sentences with movement, and out-performs a baseline learner that performs distributional analysis without knowing which verbs require objects. This shows that a learner can use distributional analysis to identify forms that are characteristic of movement in English, and that doing so incrementally requires building on prior verb knowledge.

V. Podlipsky, K. Chládková, N. Paillereau, F. Smolík, S. Simackova: Four- and Ten-month-olds Distinguish between Native and Foreign-Accented Rhythm

Young infants' ability to discriminate between languages has been attributed to an early knowledge of the native intonational patterns and rhythm. We aimed to find out whether infants recognize foreign accented speech on the basis of rhythm alone and whether the role of rhythm changes with age. We predicted that, at least at an early age, rhythm will serve as the cue to foreign accent and that its role may decline with age as the receptive vocabulary spurts. In a central fixation paradigm, infants listened to pseudorandomized trials with native and foreign-accented stimuli, which were naturally produced imitations of Czech and Russian-like rhythmical pattern superimposed on Czech well-formed sentences. We found that infants looked longer on foreign-accented than on native-accented trials, and that younger infants looked overall longer than older infants. Our findings extend the role of rhythm from the ability to differentiate languages to discriminating slight variations in accent.

A. Popescu, A. Noiray: Reading proficiency and phonemic awareness as predictors for coarticulatory gradients in children

The present study tested the hypothesis that the acquisition of reading initiated in early primary school, coupled with a gain in phonemic awareness correlate with children's narrowing of intra-syllabic coarticulation degree and greater segmental specification of articulatory gestures.

Station 16

A. Pratt, J. Grinstead, P. Ortiz-Ramírez, A. Arrieta-Zamudio, M. Cantú-Sánchez, X. Carreto-Guadarrama, D. Abakarova: Simultaneous vs. Consecutive Actions and Implicature Generation

Work on children's ability to generate "some, but not all" implicatures associated with existential quantifiers has shown that when the action represented in the Truth-Value Judgment Task scenario is simultaneous, for example, 4 pigs closing a door simultaneously, adults reject a sentence such as Algunos cerditos cerraron la puerta. (Some pigs closed the door.), but children do not. In this study, we create scenarios that use consecutive action instead. For example, some children go down a slide, one by one. In this case, both adults and children reject the sentence (Algunos niños bajaron la resbaladilla. Some children went down the slide.), with a significant age effect occurring between 4 year-olds, who accept such a sentence, and 5 and 6 year-olds, who, like adults, reject it. The manner in which action is visually portrayed is argued to influence child set representations.

T. Sano: On the generality of the agent-first strategy

We show that the purported generality of children's agent-first strategy (Bever 1970, Hayashibe 1975) does not hold by showing that children at age 4-5 do not rely on the agent-first strategy in interpreting a Japanese cleft sentence when the first NP is location and the second NP is agent. The correct response rate for interpreting Japanese Subject Cleft is remarkably high at age 4-5 when the first NP is location and the particle attached to the first NP is -ni. This data seems to suggest that there is previously unconsidered limitation to the scope of the agent-first strategy.

M. Santín, C. Hobbelink, M. Flecken, A. van Hout: Acquisition of resultative event representations in Dutch: Does describing events aid memory of results?

Language-specific influences on native speakers' attention to particular event features (Slobin 1996) have been identified in memory representations of events in adults (Filipovic, 2010; Gennari et-al., 2002; Sakarias & Flecken, 2019). Children gradually learn to represent events in language-specific, adult-like ways (Bunger et-al. 2016; Papafragou et-al. 2002). Here, we investigate resultative events with actions aimed at the achievement of results. Dutch uses designated linguistic means: verb-satellite constructions lexicalize manner plus result (schoon-poetsen 'clean-wipe'), whereas single verbs typically lexicalize manner, defocusing results (poetsen 'wipe') (Talmy, 2002). To what extent does describing events affect the representation of event results in memory? Is this effect modulated by the use of verb-satellite constructions? We conclude that, for adults, using language consolidates the representation of resultative events in memory. This thinking-for-speaking effect is linked to their use of verb-satellite constructions as a distinct means to describe resultative events. In contrast, the children did not distinguish ceased and ongoing resultative events verbally; verbal encoding thus did not boost their memory. We discuss this in relation to theories of event cognition.

Station 17

B. Schwartz, C. Fiestas, K. Drager, T. Grüter: Tense and finiteness in contemporary child Pidgin (Hawai'i Creole)

Studies of African American English have demonstrated the importance of discriminating between language variation and deficit. Similar concerns arise for children who speak Hawai'i Creole ('Pidgin'), an English-lexified creole widely spoken in Hawai'i, making appropriate clinical and education assessment difficult. Here we report on first steps towards a description of contemporary child Pidgin. Using a corpus of narrative retellings by K-1st grade students across Hawai'i, adult Pidgin speakers rated one-minute audio-samples from 30 children from 1="heavy Pidgin" to 4="English". The most consistently Pidgin-rated and English-rated files were transcribed and analyzed. Salient differences between (adult) Pidgin and English lie in tense and finiteness marking, including the past-tense marker wen, optional null-marking of tense and finiteness, invariant was, and zero-auxiliaries. Results show null tense-marking and invariant was occur consistently among Pidgin-rated children, but are virtually absent among English-rated children, suggesting these forms are properties of typical development among Pidgin-speaking children.

H. Shimada, Y. Masaki, R. Okada, A. Ohba, K. Ikeda, K. Yamakoshi: The Agent-first Strategy and Word Order: Children's Comprehension of Right Dislocations and Clefts in Japanese

It is observed that Japanese children incorrectly interpret sentence-initial objects as an agent in constructions such as Scrambling or Subject Cleft. The children's incorrect interpretations can be accounted for by the Agent-first strategy, since Japanese is an SOV language. This study examines Japanese children's interpretations of right dislocations(RDs) in which objects can appear in sentence-initial positions. If the Agent-first strategy is applied to sentence-initial objects because of the non-canonical word order, it is expected that children apply it to Subject RDs as well. Our experimental results suggest that this is not the case: Japanese children comprehend Subject RDs much more correctly than Subject Clefts. This result casts doubt on the view that the Agent-first strategy is applied by children due to the non-canonical order (i.e., sentence-initial object) only. Rather, Japanese children's (mis)comprehensions of non-canonical sentences and the Agent-first strategy seem to be tightly related to the processing burden of them.

G. Shin, K. Deen, W. O'Grady: Children Need More Information for Comprehension: Limits on the Agent-first Preference in Korean

We explored how the well-known agent-first preference interacts with such structural factors as the number of arguments and the presence of case-marking in Korean. To investigate whether and how these factors affect this preference, we measured 3-4-year-olds' comprehension of canonical transitives (SOV with a nominative-marked agent and an accusative-marked theme) where arguments and case markers were obscured to varying degrees. Children were at-chance in the noun-verb pattern without case-marking, showing their uncertainty about the thematic role of the nominal when it is both the only argument in the sentence and lacks case-marking. Accuracy increased significantly in the noun-nominative-verb pattern than in the two-noun pattern without case-marking, indicating a heavier reliance on case-marking than on the presence of another argument in a sentence for the agent-first interpretation. These findings suggest that the agent-first preference in Korean-speaking children's comprehension is activated only in conjunction with other types of grammatical cues.

Station 18

C. Sotomayor, A. Abel, M. Maguire: Differences in Attention During Word Learning in School-Aged Monolinguals and Bilinguals

This study examines the neural mechanisms underlying attention during word learning in English-Spanish bilingual and English monolingual 10-14 year old children. The children were matched on age, socioeconomic status, and language proficiency. We recorded event-related potentials (ERPs) during an English experimental word learning task in which children read groups of 3 sentences that provided meaning for a nonword. ERPs were time-locked to the nonword onset and the analysis focused on the P200 component, which is linked to attentional mechanisms. Results showed no difference in word learning accuracy between groups. The P200 amplitude was greater for bilingual versus monolingual children and, for both groups, was maximal for the 2nd exposure to the nonword. Taken together, these findings indicate that attention allocation varies during the course of word leaning and that bilingual children allocate more attention to word learning with commensurate behavioral outcomes.

J. Teixeira: Gradient optionality at the syntax-discourse interface: The case of subject-verb inversion in advanced and near-native English

According to the Interface Hypothesis (IH) (Sorace, 2011; Sorace & Filiaci, 2006), properties involving the syntax-discourse interface are a locus of permanent optionality in L2 acquisition, due to processing inefficiencies which are a by-product of bilingualism. According to an alternative hypothesis by Slabakova (2015), which we label the "L1+input hypothesis" (LIH), properties at the syntax-discourse interface only generate persistent problems when they are different in the L1 and the L2 and rare in the input. To test the IH and the LIH, this study investigates the L2 acquisition of locative inversion (LI) and there-inversion (TI) in English by adult L1 speakers of European Portuguese (EP) (n=17 advanced, 11 near-natives) and French (n=17 advanced, 11 near-natives).

These are appropriate testing grounds for the IH and the LIH for three reasons. The first is that English LI and TI involve the syntax-discourse interface. LI is only felicitous when the locative is presupposed

E. Tenenbaum, K. Carpenter, M. Sabatos-DeVito, J. Hashemi, S. Vermeer, G. Sapiro, G. Dawson: A Six-Minute Measure of Vocal Maturity in Toddlers with Autism Spectrum Disorder

Because autism spectrum disorder is not typically diagnosed until age 4, we know very little about the onset of speech in this population. Here we examined vocalizations among toddlers aged 16-31 months during administration of a 6-minute tablet-based application designed to identify risk for ASD. Vocalizations were recorded using the camera and microphone embedded in a tablet while toddlers watched movies designed to elicit behaviors associated with risk for ASD. Canonical babbling ratio, the ratio of fully formed consonant-vowel combinations to all vocalizations, was significantly higher among TD than ASD participants. Participants who had not yet reached the previously defined canonical babbling status of ratios greater than .15 (Patten et al., 2014) were 10 times more likely to be diagnosed with ASD. These findings indicate significant delays in vocal maturity among toddlers with ASD and suggest that atypical speech production may help identify children with ASD early in development.

Station 19

R. Vieira: Scalar implicatures and children's logical reasoning

We propose that children tested by Noveck (2001) failed in computation of scalar implicatures (SI) because the strong relevant scalar term was presented as the result of a logical consequence reasoning, which might have blocked children's access to it. In order to evaluate our hypothesis, we ran an experiment with 5 year-olds, 7 year-olds and 9 year-olds acquiring Brazilian Portuguese. Stories were told to the participants. In half of the stories, maximum scalar values were displayed as unreached goals (designed to test children's capacity to infer SI). The other half of the stories focused on lower-limit scalar information, without contrasting it with maximum scalar values (designed to test children's ability to infer contextual informative gaps using logical consequence reasoning). The results corroborated our hypothesis, as children showed much higher rates of SI extraction than inference of logical consequences while no difference between conditions was found in control group (adults).

S. Volkova, R. Folli, C. Sevdali, J. Gerard: The task clears the path for comprehension: the acquisition of case in Russian

Children's morphological-case comprehension presents contradicting hypotheses and results. A main focus in the current literature on case comprehension has been the difference in children's better understanding of subject-first than object-first sentences. Worse performance on object-first sentences has been linked to children's failure to rely on case for argument-role assignment in non-canonical sentences. Two main hypotheses emerged to account for comprehension failure: H1 explains the comprehension failure through children's underlying non-adult-like grammar and H2 argues in favour of an adult-like grammar and the influence of extra-grammatical factors, which predict better performance with easier tasks. The current study demonstrates the role of methodology as an extra-grammatical factor in the morphological-case comprehension of 4-5-year old Russian monolinguals with a picture-selection- and a referent-selection task. The results are inconsistent with H1, showing children's ability to rely on case in object-first sentences for picture-selection specifically. The obtained variability in performance across tasks supports H2.

Y. Xie, S. Avrutin, P. Coopmans: Development of the Syntax-Discourse Interface knowledge in 3-6 year old Mandarin Chinese Children

Children's knowledge of the syntax-discourse (S-D) interface involved in the interpretation of referentially dependent DPs has predominantly been investigated in language acquisition studies that explored this phenomenon from a purely syntactic perspective, with little attention to the discourse part. Mandarin Chinese (MC) is a discourse-oriented language and lacks overt morphosyntactic markers of specificity. The question is how MC speaking children can acquire the S-D interface knowledge properties of such phenomena as bridging and logophoricity, and how we can characterize the difference between MC children and children acquiring Indo-European languages. This study reports on a S-D processing model and the results of two experiments that tested MC speaking children which show that these children start to grasp the knowledge of logophoricity from 3 and bridging around 4, with a slightly higher accuracy rate than their Dutch and Russian counterparts.

Station 20

K. Yatsushiro, A. Alexiadou: The Acquisition of Argument-Roles in Nominalizations

Grimshaw (1990) postulates that the process of nominalization involves the sup- pression of the external argument of the base verb. More recently, Roeper and van Hout (2009), Bruening (2013), Borer (2013), and Alexiadou (2019) have also argued that nominalization has several similarities with passivization. This makes a prediction: children's acquisition pattern of nominalization should resemble that of passives. In this paper, we show that the abstract structural parallel between passive sentences and nominalizations Grimshaw (1990) postulated makes predictions for acquisition that are born out. Armon-Lotem et al. (2016) and many others observe that (i) active sentences are acquired before passive sentences, and (ii) passives without a by-phrase are comprehended correctly more than those with a by-phrase. We argue that both properties (i) and (ii) have analogues with nominalization, which corroborates the view that abstract syntactic properties underlie (i) and (ii).

Home

Conference Info

Schedule and Abstracts

Registration

Pop-Up Mentoring Program

Location

Childcare Information

Code of Conduct

For Presenters

For Publishers

For Volunteers

Business Report

Archive

Travel & Hotel

Abstracts & Reviews

Proceedings

Donations

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