BUCLD45: Abstracts at-a-glance

<u>Symposium</u>
<u>Time: 12:30 PM – 2:00 PM, November 8, 2020</u>

Exploring innateness: How do we move ahead?

Organizer: *Iris Berent*
Participants: *Virginia Valian, Elissa Newport, Iris Berent*

Few questions in science are as controversial as the origins of knowledge, and linguistic knowledge is no exception. Despite decades of research effort and advances in methods and technology, scholars still struggle to decide whether any aspect of linguistic knowledge is innate. Why is innateness such a hard question? How can we move the debate forward?

This symposium explores these questions from an interdisciplinary perspective. We do not presume to settle the nature-nurture controversy. Rather, we ask why the road thus far has been so hard, and how we move ahead: how can we use logical analysis and empirical evidence from brain and behavior to inform the discussion on the innate origins of language? Virginia Valian argues for innate syntactic universals; Elissa Newport considers the nature of innateness based on evidence from pediatric stroke; Iris Berent shows how our troubles with innateness could arise from biases that are possibly innate.

Day 1: November 5, 2020
(Morning session)
Session A: Phonetics & Phonology

10:00 AM – 10:30 AM
Acquisition of morphologically and phonologically conditioned vowel length in Albanian
Enkeleida Kapia; Josiane Riverin-Coutlée; Conceição Cunha; Jonathan Harrington

Many basic aspects of morpho-phonological acquisition have been looked at from the perspective of well-resourced Indo-European languages, but many still remain unexplored, especially from the perspective of understudied languages. This study considers whether children benefit more from a frequent morphological or a less frequent phonological vowel lengthening during acquisition of Gheg, a major dialect of Albanian. We addressed this question with 6-7 year-old children, because this is the earliest age group that is likely to show some phonetic proficiency in communicating such factors in morpho-phonologically complex languages like Albanian. Results from 22 adults and 37 children suggest that less frequent phonological and more frequent morphological factors are learned with equal proficiency. Specifically, both types of vowel lengthening are significantly longer than control vowels, but not significantly different from one another. Importantly, there is no significant interaction between the group of speakers (adults/children) and the type of words.

10:30 AM – 11:00 AM
The relationship between second-language learners' production and perception of English vowels: The role of native-like acoustic correlates
Jae Yung Song; Fred Eckman

Despite the abundance of research on the relationship between second-language learners' production and perception of target-language contrasts, the details of this relationship remain unclear. This study aimed to extend our understanding of the relationship by investigating whether the use of native-like acoustic cues in the production of vowels relates to the perception of those vowels. To this end, we examined the production and perception of two English vowel contrasts (/i/-/ɪ/, /ɛ/-/æ/) in 29 native-speakers of American English and 48 second-language learners of English. We found that the second-language learners who made distinctions between the target vowels using native-like cues also had significantly better perception scores for these vowels compared to the learners who made distinctions using non-native-like cues, and also compared to the learners who did not make any acoustic distinctions at all. The findings provide compelling evidence that second-language learners' production patterns are linked to their perception skills.

11:00 AM – 11:30 AM
From babbling to first words: Phonological or lexical selection?
Suzanne van der Feest; Hoyoung Yi; Barbara Davis

This study contributes to the debate of whether very young children choose words to say based on the sound patterns in those words and their articulatory capacities. We compare phonological patterns in the first words of six monolingual English-learning children (ages 8-35 months, Texas Davis Database) with sound patterns in those same children's earliest speech-like syllables, or canonical babbling.

The results from analyses of distributions of sounds with different place of articulation in babbling versus words (GLMM models) show a clear pattern of phonological dominance at the very earliest stage of word use, and a transition to lexical dominance when productive vocabulary size increases. We argue that these results are not only interesting from a theoretical perspective, providing insight into the nature of early phonological lexical representations, but can be important for planning clinical intervention protocols for older children functioning at the earliest period of word use.

11:30 AM – 12:00 PM
Hypo- and hyperarticulation in infant-directed speech in German
Dinah Baer-Henney; Charlotte von Kries

The present study on German IDS investigates aspects of both vowels and consonants. We recorded infant- and adult-directed speech in five mothers and fathers twice. We show hyperarticulation with regard to F0, the vowel duration, and variability whereas the consonant quality and duration are hypoarticulated. Our data shows that previous literature on hyper- and hypoarticulation may partially be explained by an age- and sex-specific attention shift towards the unit of interest.

12:00 PM – 12:30 PM
How to obtain robust predictions from computational models of learning
Thomas Schatz; Yevgen Matusevych; Ruolan Li; Sharon Goldwater; Naomi Feldman

Computational simulations are often necessary to predict the outcome of language learning processes. In practice, however, simulations can generate predictions that look haphazard and unreliable. We argue that addressing issues of statistical reliability—similar to experimental data analysis—is not sufficient for obtaining reliable model predictions. Modeling analyses also need to address reliability issues that arise from known differences between simulations and the underlying reality they try to capture. We illustrate this through a case study on early phonetic learning, and show that controlling for these factors substantially impacts model predictions regarding infants' cross-linguistic discrimination.

(Morning session)
Session B: Semantics & Pragmatics

10:00 AM – 10:30 AM
Learning speaker- and addressee-centered demonstratives
Amalia Skilton

English-acquiring children produce demonstrative words (e.g., this/that, here/there) very early in development – but do not display adult-like production or comprehension of the items until very late (Clark & Sengul 1978, a.o). We ask whether this early emergence/late mastery pattern also holds in Ticuna, an Amazonian language with an unusually complex demonstrative system. It does not: Ticuna children share the English pattern only for speaker-centered demonstratives, not for addressee-centered ones. This result suggests that children's cognitive egocentrism can outweigh frequency effects in demonstrative acquisition.

10:30 AM – 11:00 AM
Genericity signals the difference between each and every in child-directed speech
Tyler Knowlton; Jeffrey Lidz

Despite their similarities, "each" and "every" differ in important respects, including compatibility with generic interpretations. Learners might use this fact to infer the relevant semantic difference. Namely, parents generally use "each" to predicate properties of individuals in the local domain (e.g., "put a flower on each plate"), and "every" to express inductively grounded generalizations that project beyond the local domain (e.g., "every time I give you one you throw it"). We looked for lower-level concomitants that children could notice and use as evidence about the semantic representations. We predicted that (i) "each" is more likely to quantify over individuals whereas "every" is more likely to quantify over times; (ii) "each" is more likely to occur in an argument position whereas "every" is more likely to serve as a topic-changing adjunct; and (iii) utterances with "every" are more likely to be in present tense. These predictions were borne out.

11:00 AM – 11:30 AM

Can 2.5-year-olds use expectations about polysemy for disambiguation?
Sammy Floyd; Adele Goldberg; Casey Lew-Williams

Many studies have shown that children as young as 24 months are more likely to select a novel (vs. known) meaning for a novel word. However, in natural languages, 40-80% of words are used to refer to multiple, related meanings – known as polysemy. For instance, toddlers recognize both a baseball cap and a bottle cap as cap. We investigated how toddlers generalize novel words to additional polysemous meanings, and whether this generalization facilitated disambiguation of additional novel words. Adults (n=30) and toddlers (n=20; M=32 months) were recruited for a touchscreen task. The present findings suggest that the ability to use evidence (labels) to infer polysemous extensions can lead to cascading gains in word learning. Importantly, we found that neither toddlers nor adults assume a word is extended to a related meaning without evidence. This is expected, given that the range of meanings assigned to each word differs across languages.

11:30 AM – 12:00 PM

Pragmatic effects on the learnability of evidential systems
Dionysia Saratsli; Anna Papafragou

Cross-linguistically prevalent distinctions are widely assumed to be easier to learn. Within semantics, these learnability patterns are typically attributed to the naturalness of the underlying concepts. Through our study, we show that pragmatic pressures can also shape the cross-linguistic prevalence of semantic distinctions, and offer evidence from the domain of evidentiality (the encoding of information source).

12:00 PM – 12:30 PM

How should we use words like could? Development in understanding epistemic modal verbs as seen through modal judgment tasks
Mahesh Srinivasan; Ruthe Foushee; Ariel Starr; Jon Wehry; Shaun O'Grady

Previous studies investigating children's understanding of epistemic modal verbs have focused on contrasting certain versus uncertain outcomes (Hirst & Weil, 1982; Noveck, Ho, & Sera, 1996; Ozturk & Papafragou, 2015). These studies often interpret their findings in terms of the child's ability to reason about the speaker's knowledge, and suggest that a mature understanding of epistemic modals involves a transition from logical interpretations ("might rain" is compatible with a world in which raining is highly likely) to pragmatic interpretations (might is dispreferred if the stronger modal should is licensed). Here, we focus on how children map the scale of epistemic modals onto their developing understanding of probabilities (O'Grady et al., 2019) to communicate events. We directly compare adults' and children's preferences across a range of epistemic modal verbs (could, can, should, and will) to express events at varying levels of uncertainty.

10:00 AM – 10:30 AM

Children with cochlear implants use semantic prediction to facilitate spoken word recognition

Christina Blomquist; Rochelle Newman; Yi Ting Huang; Jan Edwards

The purpose of this study was to investigate whether children with CIs use language knowledge via semantic prediction to facilitate recognition of upcoming words and help compensate for uncertainties in the acoustic signal. 5- to 10-year-old children with CIs heard sentences with an informative (draws) or neutral verb (gets) preceding a target word (picture). The target was presented on a screen with a cohort competitor (pickle). Eye gaze was recorded to quantify efficiency of lexical access and phonological competition. Performance was compared to both age-matched group and vocabulary-matched control groups with NH. Children with CIs demonstrated use of informative verbs to look more quickly to the target word and look less to the phonological competitor, but there were delays in word recognition relative to their peers with NH even when matched for vocabulary. Children with CIs experience challenges in spoken word recognition above and beyond limitations from delayed vocabulary development.

10:30 AM – 11:00 AM

Lexical competition in late language emergence

Elizabeth Simmons; Rhea Paul; Richard Aslin; James Magnuson

Toddlers with late language emergence, or late talkers (LTs), are 18-35 month-olds with delayed expressive language in absence of an obvious causal mechanism. Most literature on LTs focuses on their salient production deficits with less attention focused on processing despite hints in the literature of lexical processing differences in school-age children with reading and language disorders. We evaluated online lexical processing in a group of LTs and typically developing toddlers. Participants completed a simplified visual world paradigm task while we tracked their eye movements to targets and competitors as they were presented with a target word and two images. Targets were paired with a phonological competitor, semantic competitor or an unrelated object. The LTs showed greater competition (longer fixation to phonologically and semantically related items) compared to typical toddlers. Our findings suggest that early deficits in resolving lexical competition may be present in some late talking toddlers.

11:00 AM – 11:30 AM

Lexical priming as evidence for language co-activation in the simultaneous bilingual child's lexicon

Elly Koutamanis; Gerrit Jan Kootstra; Ton Dijkstra; Sharon Unsworth

Research on between-language lexical priming in children is limited and largely restricted to toddlers (Von Holzen & Mani, 2012; Singh, 2014). Individual-level factors known to influence language co-activation in adults have not been systematically investigated in children. The current study investigates between-language lexical priming in school-aged Greek-Dutch simultaneous bilinguals, in interaction with individual differences in proficiency, exposure, and use.

      Participants matched pictures to auditorily presented Greek and Dutch prime and target words. These words overlapped phonologically, semantically, or phonologically mediated by semantics (e.g., vrachos(GR) 'rock'–rots(NL) 'rock'–rok(NL) 'skirt'). Greek and Dutch proficiency, exposure, and use were assessed through offline tasks and parental questionnaires. Stronger between-language priming was predicted for highly proficient bilinguals.

      Reaction times revealed phonological and semantic priming effects, and interactions with individual differences. These results provide new evidence for language co-activation in bilingual children, and demonstrate with sources of individual variation influence their lexical processing."

11:30 AM – 12:00 PM

On the links between speed of processing, parental input complexity and vocabulary development

Julia Egger; Caroline Rowland; Christina Bergmann

We know that parental speech input plays a vital role in infant's language acquisition and cognitive development. However, we know less about which aspects of parental speech play the biggest role. For example, the impact of parental mean length of utterance (MLU) is still unclear. Parental MLU is an indicator of the complexity of input and might be expected to play a major role in determining how children acquire language. This study tests whether there is a link between parental MLU and children's productive vocabulary and if this relationship is mediated through infant's lexical speed of processing (SoP). Preliminary results do not reveal a significant correlation between parental MLU and vocabulary development. However, they indicate that our prediction is borne out that faster processors benefit more when exposed to more complex language input. This finding demonstrates how we can further elucidate the role of input and SoP in vocabulary development.

12:00 PM – 12:30 PM
Referential pacts with preschoolers maximize testable words and reveal changes in construal
Kristie McCrary Kambourakis; Sarah Creel

Our study tested whether preschoolers (3 to 5 years) would agree to use specific labels in a picture-naming task by leveraging their ability to engage in referential pacts (a locally created conventions for referring to an object) with a conversational partner (Graham et al, 2013, Köymen et al, 2014, Matthews & Stephens, 2014). We conducted a picture-naming study with or without a pre-naming task that implicitly created a set of referential pacts between the child and the experimenter. We found not only that this technique is successful--a methodological advance--but also that children are willing to agree to a less-preferred construal of a picture. The finding that referential pacts make it possible to spontaneously elicit picture names from preschoolers is a methodological innovation in the study of child language perception and production. The finding of form-class entrainment suggests that children may have event category structures similar to adults.

Day 1: November 5, 2020
(Evening session)
Session A: Literacy Development

7:00 PM – 7:30 PM

Dialect change and early reading comprehension in African American children
Ran Yan; Shabathyah Charles; Peter de Villiers

This study relates changes in African American children's dialect to their reading achievement at the end of first grade. We hypothesize that children who become bi-dialectal by the early elementary grades have greater success in reading development. The data come from a longitudinal study of 200 AA children from low-income communities followed from the beginning of preschool to the end of first grade. Latent Profile Analysis revealed four coherent and distinctive groups of children in the sample based on the trajectory of their dialect change. Children who shifted from high AAE at preschool to low AAE and high MAE production on the DELV-ST at first grade had significantly better reading outcomes than children who were high AAE at both preschool and first grade. Results are discussed in the context of the reading achievement gap between AA and white children at elementary school and what factors might contribute to bi-dialectal development.

7:30 PM – 8:00 PM

Effects of African American mothers' language to their preschool children on later reading outcomes
Peter de Villiers; Ran Yan; Lissandra Camacho; Asha Reed-Jones; Braina Peter's; Shabathyah Charles; Nyla Conaway; Ellory Doyle; Dorithy Barnieh

Language input from 102 low-income African American mothers to their preschool children from a 10 minute free play sample was analyzed for semantic and syntactic variation and for depth of AAE dialect. Regression analyses and structural equation modeling showed that higher mothers' language richness scores were significant independent predictors of better reading comprehension in the children at the end of first grade but amount of mothers' talk and depth of AAE dialect were not.

7:00 PM – 7:30 PM

Can "blick" be passivized? Depends on its meaning: A novel-verb study with English-speaking children
Emma Nguyen

Several studies have noted that young children's accuracy on English verbal passives varies by verb depending on its lexical semantic class, rather than its input frequency. Previous studies have mostly relied on familiar verbs; the current study breaks new ground by testing the contrasting predictions of three lexical semantic proposals with novel verbs. We find support for Subject-Experiencer verbs being harder in the passive than Object-Experiencer and Agent-Patient verbs, and that children and adults are similar in the novel verbs they are willing to passivize.

7:30 PM – 8:00 PM

Acquisition of belief reports by Mandarin speaking children
Valentine Hacquard; Yu'an Yang; Jeffrey Lidz

Preschoolers tend to fall prey to false belief errors and reject think-sentences like (1) when the complement clause is false (Wellman et al. 2001 a.o.). Lewis et al. (2017) argue that this rejection results from children over-assuming that think sentences are used to indirectly assert the complement (a frequent use of think in adult speech), and show that three-year olds' performance improves significantly in contexts where indirect assertion uses are blocked and beliefs made salient. In this study we show that the same manipulation with Mandarin juede (think) works with Mandarin-speaking adults, but not three-year-old children (age 3;2-4;2, mean = 3;8).

Day 1: November 5, 2020
(Evening session)
Session C: Computational Modeling

7:00 PM – 7:30 PM
Bare form production for past-tense: A computational analysis of 3 accounts
Libby Barak; Zara Harmon; Naomi Feldman; Jan Edwards; Patrick Shafto

Computational models of morphology learning often focus on overgeneralization errors, while the production of the past tense using the bare verb has been relatively neglected. Previous models of regularization often presume that children already know the mapping between inflections and meanings. Instead, we show that a model in which children are still learning these associations can still account for overgeneralization and regularization and also capture the variability between bare forms and past tense. We use a Bayesian model of fragment grammars to compare three models that differ in how they represent these associations. Only the model that learns the associations from the input is able to replicate both increased production of bare form for past-tense and eventual regularization of –ed. Our model offers a flexible framework that can be applied to other learning problems and shows how representation assumptions may change the learning trajectory of models.

7:30 PM – 8:00 PM
Continuously growing resources but discrete production units: A probabilistic account of the development of early utterance length
Qihui Xu; Martin Chodorow; Virginia Valian

Why are children's first utterances short, and often ungrammatical? What determines the gradual lengthening of children's early utterances? We explain increasing utterance length over time with a probabilistic computational model that posits continuous development, with varying and growing cognitive and linguistic resources, rather than a sequence of discrete stages. In study 1, We find a developmental change with gradual increases and then transitions to more stable proportions of utterance length. In study 2, we developed a probabilistic computational model to model the empirical results from study 1. Our model follows the empirical pattern both qualitatively and quantitatively, showing that shows that the development of early utterance length is an interaction between continuously varying, developmentally increasing resources and the requirement to produce utterances of discrete length.

(Morning session)
Session A: Bilingualism & Cognition

10:00 AM – 10:30 AM
The effectiveness of phonological cues for bilingual input separation
Frans Adriaans

A key challenge in early bilingual acquisition is to distinguish two different languages in the input speech stream. This paper investigates the effectiveness of segmental and phonotactic cues for input separation of two rhythmically similar languages: English and Dutch. Computational modeling is used to determine (i) to what extent different cues can predict the origin language in mixed input data, and (ii) how robust these cues are when confronted with different degrees of language mixing. Three probabilistic models were implemented, one based on the relative frequencies of segments, and two based on phonotactics (biphone and triphone transitional probabilities). The models were trained on combined samples from English and Dutch corpora in a variety of input mixing proportions, ranging from completely separated training data to 50-50 mixed input. The results show that biphone-based phonotactics could provide English-Dutch bilingual infants with a relatively accurate and robust cue for language separation.

10:30 AM – 11:00 AM
Language exposure predicts bilingual children's speech patterns
Meg Cychosz

We examine how children acquiring Quechua, a language with an extensive, agglutinating morphology, learn to distinguish between morphologically complex and simple words in their speech. N=35 Quechua-Spanish speakers, aged 5;0-8;0, completed a daylong audio recording and a word elicitation game in Quechua. We anticipated that bilingual Quechua-Spanish children who used more Quechua in their daylong recordings would distinguish more between Quechua word environments in their speech. The duration and coarticulation of children's speech were measured in two-word environments: within morphemes and across morphemes. The daylong recordings were manually annotated for language spoken (Quechua, Spanish, Mixed) and speaker (e.g. Target Child). Results show that bilingual children's language use does predict their ability to phonetically distinguish between word environments: children who use more Quechua differentiate more. Observing a unique population with naturalistic methods, this result shows that children's speech patterns by word environment are contingent upon their language exposure and use.

11:00 AM – 11:30 AM

Bilingualism effects in the Theory of Mind of children with Autism Spectrum Disorder in social exclusion contexts

Eleni Peristeri; Stephanie Durrleman; Ianthi Maria Tsimpli

The current study investigates whether bilingualism reliably enhances Theory of Mind (ToM) in Autism Spectrum Disorders (ASD) and explores possible associations between ToM, language ability, and sensitivity to social threat within the context of bilingualism. One-hundred children (Mean age: 12;2) participated: 25 bilingual children with ASD (ASDbi), 25 monolingual children with ASD (ASDmono), 25 typically-developing (TD) monolingual (TDmono), and 25 bilingual children (TDbi). ToM was measured through a low-verbal false belief task that recorded accuracy and reaction times. Children's expressive vocabulary was measured through a standardized test. Sensitivity to social threat was measured via the Cyberball game assessing social cognitive appraisals of exclusion. Results confirm positive effects of bilingualism for ASD children on ToM (also for TD children), empathy in social threat contexts, and on the understanding of the affective content of Mood words. A stronger relationship emerged between ToM, social responsiveness and language in bilinguals with and without ASD.

11:30 AM – 12:00 PM

Are refugee bilingual children disadvantaged in their cognitive and linguistic abilities?

Özlem Yeter; Hugh Rabagliati; Duygu Özge

We report data investigating cognitive and linguistic abilities of Syrian children in Turkey, compared to an age- and SES-matched control group: Turkish-Arabic non-refugee children. We measured vocabulary (using TIFALDI), narrative production and comprehension ability in both languages (MAIN) (Gagarina et al., 2012; 2019), and a set of cognitive measures: Forward-digit-span-task, backward-digit-span (Wechsler 1974), Happy-Sad-Test (Lagattuta et al., 2011), Wisconsin-Card-Sorting-Task (Berg, 1948). While refugee children had developed Turkish skills, they still lagged non-refugee-bilinguals in vocabulary and narrative production, although interestingly, their narrative comprehension scores did not differ. In Arabic, however, the refugee children's linguistic abilities were stronger than the non-refugee bilinguals in macrostructural components of narratives. Nonlinguistic abilities were roughly similar between groups, although non-refugee bilinguals scored higher in working-memory. These results highlight refugee children's difficulties adapting to Turkish, but their strong Arabic skills and matched cognitive abilities indicate their development had not been overwhelmed by trauma of displacement.

12:00 PM – 12:30 PM
Associations between manual dexterity and language skills persist into adulthood
Patricia Brooks; Rita Obeid; Alexandria Garzone

Domain-general theories propose that shared processing mechanisms underlie development of motor and language skills. Clinical research supports this position, as children with developmental language disorders often have motor difficulties, impaired sequence learning, and slower processing speed across domains. Using the grooved pegboard task to assess manual dexterity, we explored motor-language associations in non-clinical samples. In school-age children (N = 63), individual differences in manual dexterity were directly associated with nonword repetition ability and indirectly associated with receptive vocabulary and grammar knowledge (mediated by nonword repetition). We replicated the child study with a diverse undergraduate sample (N = 65); here manual dexterity was directly associated with receptive language abilities as well as nonword repetition. The results suggest that links between motor control and language abilities persist into adulthood, providing further evidence for the view that domain-general mechanisms support the sequential operations that underlie automaticity in language processing and action planning.

(Morning session)
Session B: Morpho-Syntax

10:00 AM – 10:30 AM
The development of non-canonical word order in Mandarin-speaking heritage children
Jiuzhou Hao; Vicky Chondrogianni

This study investigated factors modulating child heritage speakers' (CHSs) development of (non)-canonical word orders. Twenty 5-to 9- year-old Mandarin CHSs with English as their societal majority language were tested on the comprehension and production of three Mandarin non-canonical word orders: BA actives, passives with and without BEI. Twenty age-matched Mandarin-speaking monolingual children and ten monolingual adults served as controls. Results show effects of structural complexity coupled with (non)-canonical word order, cross-linguistic influence (CLI), and chronological age. Importantly, although CHSs' performance on BA is largely intact, performance on neither type of passives is age-appropriate. We argue that non-canonical syntactic structures requiring thematic role reversal cause greater difficulties. This is also true in the effect of CLI. Canonical actives are significantly likely to be used following a passive than a BA prime in the production. Finally, developmental effect is observed across conditions, indicating that CHSs may take longer to reach monolingual abilities.

10:30 AM – 11:00 AM
Number mismatch and intervention in the absence of lexical restriction: An investigation of celui/celle-headed relative clauses in French
Anamaria Bentea; Stephanie Durrleman

Intervention effects arise in object relatives (ORs) as compared with subject relatives (SRs) when the object and the subject share a (lexical) N restriction, however a featural mismatch between the OR head and the embedded subject can modulate these effects. In a study with 39 French-speaking children aged 4-5, we investigate intervention effects by examining the impact of number mismatch on SRs and ORs headed by the demonstrative pronouns celui/celle (elements specified for phi-features without a lexical N). We address two questions: (i)Does number mismatch modulate comprehension in the absence of a lexical N? (ii)Does the challenge previously attested with these structures stem from difficulties in accessing the referent of the demonstrative? Our findings show good performance with celui/celle SRs, confirming that children have no problems identifying the antecedent for celui/celle. Number mismatch facilitates OR parsing and is relevant for the computation of locality beyond the presence of lexical N.

11:00 AM – 11:30 AM
Infants' rule generalization is governed by the Tolerance Principle
Emeryse Emond; Rushen Shi

The present study tested the hypothesis that the ratio between rule exemplars and exceptions has a quantal effect on rule generalization, as defined by the Tolerance Principle (TP) (Yang, 2016). We constructed artificial syntactic rules (three-word sentences each going through a movement rule, e.g., ABC→BAC rule) and their exceptions, using Russian. Non-Russian-learning 14-month-olds were trained and tested in a visual fixation procedure. The exceptions in the training input were just below the TP-threshold in Experiment 1 and just above the threshold in Experiment 2. The test phase presented two trial types: novel sentences going through the trained movement rule versus those going through a non-trained movement rule. As predicted, infants in Experiment 1 showed rule generalization by discriminating the trained versus non-trained rules in the test trials, whereas those in Experiment 2 did not. Our results demonstrate that the TP mechanism is present from the earliest stage of language acquisition.

11:30 AM – 12:00 PM
Probabilistic constraints on overt subject use in child Spanish-speakers with SLI
Kendra V. Dickinson; Pedro Antonio Ortiz-Ramírez; Ana Arrieta-Zamudio; John Grinstead; Blanca Flores-Ávalos

Our study analyzes overt subjects and the probabilistic constraints on their expression that have been found in adult language (cf. Otheguy & Zentella 2012) in the speech of 19 typically-developing children and 19 children with specific language impairment (SLI). Previous work shows that SLI children produce fewer overt subjects than typically-developing children (Grinstead et al. 2018), and that the latter acquire constraints on subject expression as they age (Shin & Cairns 2012; Shin & Erker 2015; Shin 2016). Our study complements these findings and provides further substance to the grammatical profile of children whose morphosyntactic development diverges from typically-developing children. Overall, we find that SLI children produce fewer overt subject pronouns in switch-reference contexts than typically-developing controls (significant interaction of group and switch-reference – B = .963, SE = .002, p < .001), and discuss the consequences of these findings within the theory of Interface Delay and other theories of SLI.

12:00 PM – 12:30 PM
Parents' and children's production of English negation
Masoud Jasbi; Annika McDermott-Hinman; Kathryn Davidson; Susan Carey

Previous research has suggested several stages for children's production of negation. Some researchers have argued that the order of morpheme production follows a "no-not-n't" cline. Others have hypothesized stages where "no" appears outside the sentence and a stage where "can't" and "don't" are learned as unanalyzed wholes because "can" and "do" are not produced separately. In this study we bring more corpus data and novel analyses to bear on these hypotheses. The results suggest that "no" is produced earlier but "not" and "n't" are produced around the same time. We do not find evidence for a presentential stage or a stage where negative auxiliaries like "can't" and "don't" are produced without the positive forms like "can" and "do". Our findings are compatible with simultaneous development of frequent negative forms with a production bottleneck that favors shorter utterances like "no" to appear earlier.

Day 2: November 6, 2020
(Morning session)
Session C: Word Learning

10:00 AM – 10:30 AM
Word frequency is a cue to lexical category for 8-month-old infants
Caterina Marino; Carline Bernard; Judit Gervain

The linguistic distinction between functors, signalling grammatical structure, and content words, carrying lexical meaning, is linguistically universal. Functors are more frequent than most content words and the frequency-based discrimination of these two categories could constitute one of the potential mechanisms guiding infants to acquire the basic building blocks of language. As content words come in open classes whereas functors constitute closed classes, we investigated whether infants relied on word frequency to categorize and track content and function words.

In six experiments we demonstrated that infants as young as 8-month-old process infrequent words as belonging to open classes, i.e. content words, frequent words as belonging to closed classes, i.e. functors, and they map the relative order of these two categories following the basic word order of their native language. These findings provide the earliest evidence that infants use word frequency as a cue to lexical categorization.

10:30 AM – 11:00 AM
Getting the rhythm for infant language learning: infants' cortical tracking of speech rhythm relates to their word segmentation performance
Tineke Snijders

Cortical tracking of both child-directed speech and simple beeps was measured in 7.5-month-old Dutch-learning infants (N=108) using EEG. At 9 months the same infants took part in a word segmentation headturn-preference task. We assessed the relation between infants' cortical tracking of rhythm and their later familiarity effect in the word segmentation experiment. For the non-linguistic beep stimuli no relation was found. For the speech stimuli, results revealed a negative correlation over left-frontal electrodes between the speech-brain coherence at 1.5-1.75 Hz and the familiarity effect. Infants that showed a familiarity response in the word segmentation task did not show speech-brain coherence from 1.5-1.75 Hz, while infants that showed a novelty response showed clear left-frontal speech-brain coherence at this frequency. Around 7-8 months of age for Dutch infants the cortical tracking of stress rhythm in speech might be particularly important for starting to identify words in continuous speech.

11:00 AM – 11:30 AM

Grammatical gender acquisition in German: Three-year-old children use phonological cues to learn the gender of novel nouns
Tom Fritzsche; Annie Walter; Barbara Höhle

While gender assignment in German is said to be largely arbitrary, several cues to gender do exist. The current study investigates experimentally children's reliance on phonological cues for gender assignment in a group of 3.5-year olds. Half of the items (novel and known nouns) were consistent with this cue. An elicitation task was administered as a game where "Bruno the bear" was looking for his friends and the child had to help him by telling him previously learnt novel animal names as well as known ones. Of the 578 analysable responses, gender marking was more accurate on known compared to novel nouns (87% vs. 63%). In novel nouns, phonologically consistent gender was more often correctly marked than inconsistent gender (80% vs. 39%). This shows that 3-year-old German-learning children make use of phonological cues when learning the grammatical gender of novel nouns which is crucial for further syntactic development.

11:30 AM – 12:00 PM

Caregiver-reported pronominal errors made by children with and without autism spectrum disorder
Emily Zane; Sudha Arunachalam; Rhiannon Luyster

Pronouns are one aspect of language known to be particularly challenging for children with autism spectrum disorder (ASD). A recent review about language acquisition in ASD argues that children show relative deficits in assigning/extending lexical meaning alongside relative strengths in morpho-syntax (Naigles & Tek, 2017). Pronouns provide an ideal test case for this argument because they are marked separately for grammatical features (case) and features that reflect qualities of the referent (gender and number) or the referent's role in conversation (person). The current study uses data from a survey completed by caregivers of children with and without ASD to compare pronominal error types across groups. Results suggest, in accordance with Naigles and Tek's (2017) grammar-vs.-meaning hypothesis, a higher proportion of children with ASD make meaning errors than they do form errors, and significantly more of them make meaning errors than TD children do.

12:00 PM – 12:30 PM
Individual variability in pupillary entrainment predicts speech segmentation with prosodic and statistical cues in infancy
Alan Langus; Mireia Marimon; Barbara Höhle

Infants can rapidly find words from continuous speech by using prosodic cues and by computing transitional probabilities (TPs) between syllables. Understanding how statistics and prosody interact is, therefore, a topic of considerable research. However, recent studies suggest that infants' ability to segment continuous speech may also depend on the temporal regularities at which prosodic and statistical cues unfold. Here we, therefore, investigate the role of entrainment in German learning infants' ability to segment speech with prosodic and statistical cues. 9-month-old infants were familiarized with a continuous speech stream in which statistical words signaled by TPs straddled prosodic word boundaries. We measured infants' pupil size. We show that the variability in infants' pupillary entrainment during the familiarization is predictive of how they weigh prosodic and statistical cues to segment continuous speech at 9-months-of-age and of their vocabulary size at 24-month-of-age.

10:00 AM – 10:30 AM
Sign advantage for children: Signing children's spatial expressions are more informative than speaking children's speech and gestures combined
Dilay Z. Karadöller; Beyza Sümer; Ercenur Ünal; Aslı Özyürek

Children often produce under-informative descriptions in communicative situations. For example, in encoding Left-Right, children instead may produce under-informative spatial terms (e.g., Side). Signing-children have been found to produce informative expressions for Left-Right in Turkish-Sign-Language[TİD] more than Turkish-speaking peers around age 8. Possibly, signing-children benefit from iconic linguistic structures that provide more information about the spatial relation in an analogue way compared to arbitrary speech forms. Speaking-children may also benefit from iconic properties of gestures to informatively encode Left-Right. We found that facilitating effect of visual modality was stronger for signing-children than speaking-children even when speech and gestures of speaking-children are considered. Having iconic linguistic tools as the sole visual modality of expression as in sign languages, unlike gestures that are not learned as linguistic forms but rather only form a composite system together with speech, might have facilitated the development of informativeness in Left-Right descriptions of signing-children.

10:30 AM – 11:00 AM
Disabled L2 learners not disadvantaged by phonological processing of signed language
Taylor Joyce; David Quinto-Pozos; Jenny Singleton

While some research has investigated learning, language, and cognitive disabilities in spoken L2 classrooms, far less work has involved signed language learners in this population. The effect of language modality for learning-disabled L2 learners is thus poorly understood.To assess the interaction of language modality and disability, this project analyzes the performance of L2 ASL learners with and without disabilities on the American Sign Language Discrimination Test (ASL-DT), a sign language phonological discrimination task. We find that disabled L2 ASL learners do not perform significantly differently from their neurotypical peers. Furthermore, the participants in our sample identified as having an auditory processing disorder not only show no disadvantage in this phonological discrimination task, but perform exceedingly well. These results indicate that disabled L2 learners do not show a systematic disadvantage on a signed language phonological task, despite their diagnoses being associated with poor spoken language phonological processing skills.

(Morning session)
Session B: Semantics

10:00 AM – 10:30 AM

Maximize Presupposition! in development
Athulya Aravind; Martin Hackl

Given a choice between two equally informative alternative sentences, speakers are expected to use the one carrying stronger presuppositions. Thus, (1a)/(2a) are blocked whenever the presuppositionally stronger (1b)/(2b) are usable. These examples involve a species of pragmatic competition, driven by a conversational maxim Maximize Presupposition! (Heim 1991).

(1) a. #Dana broke all of her legs.
    b. ✓Dana broke both of her legs.

(2) Context: Server to a person at a restaurant finishing up a coffee.
    a. #Would you like a coffee?
    b. ✓Would you like another coffee?

We investigate the development of this principle in children and find an unexpected asymmetry across competition environments: children show an adult-like preference for sentences like (2b) over (2a) in the relevant contexts, but permit weaker sentences like (1a) where adults strongly prefer (1b). We explain this asymmetry by appealing to an independently motivated distinction between the two presupposition triggers wrt anaphoricity.

10:30 AM – 11:00 AM

Decomposing *both*
Cindy Torma; Gabor Brody; Athulya Aravind

We investigate how the acquisition of semantically complex expressions tracks the acquisition of their constituent meanings using the English quantifier both. Both, while morphologically simplex, is semantically complex, comprising of two pieces: universal quantification and a cardinality presupposition that the domain has 2 members. We ask how knowledge of these sub-components (mapped by all and two) get composed to derive the complex meaning of both. In a novel combined quantity and domain selection task we measured children's (N=31) and adults' (N=40) understanding of both/two/all. We found that whereas children were adult-like in two and all trials, their behavior with both implies a lexical-entry that lacks universal quantification and the duality presupposition on the domain. Rather, duality seems to be part of the truth-conditional meaning (e.g. pair). This suggests that before acquiring adult-like complex meanings, children consider incorrect candidates, even after mastering the relevant compositional primitives.

(Morning session)
Session C: Prosody

10:00 AM – 10:30 AM
The infant brain recognizes utterance-level contours at birth
Anna Martinez-Alvarez; Silvia Benavides-Varela; Judit Gervain

How does prosody perceived in utero influence early speech perception? We asked whether it allows infants to recognize and discriminate utterance-level prosodic contours using near-infrared spectroscopy (NIRS) in 1-5-day-old French-exposed newborns (n=25). We used 4-word-long ungrammatical sequences as utterances. Each sequence was presented three times in a Standard Block. Each Standard Block was followed by a Deviant block. The deviant prosodic contour was obtained by time-reversing the original one, and super-imposing it on the intact segmental information with word order. We compared newborns' hemodynamic responses to the Standard and Deviant Blocks using a 24-channel NIRS probe. A cluster-based permutation test revealed greater oxyHb concentrations for the Deviant condition than for the Standard one in parietal-temporal areas in the right hemisphere. These results suggest that newborns are already capable of detecting utterance-level prosodic violations at birth. This is a key ability for newborns to start breaking into their native language.

10:30 AM – 11:00 AM
"The tiger hits! The duck too!" 3-year-olds can use prosodic information to constrain their interpretation of ellipsis
Leticia Schiavon Kolberg; Alex de Carvalho; Naomi Havron; Mireille Babineau; Anne Caroline Fiévet; Maria Bernadete Marques Abaurre; Anne Christophe

This work aims to investigate 3-4-year-old French children's ability to use prosodic information to constrain parsing of a type of ambiguity not yet studied, namely stripping (tense phrase ellipsis) sentences, such as "[Le tigre tape!] [Le canard aussi!]" ([The tiger hits!] [The duck too!]), versus simple transitive sentences, such as "[Le tigre] [tape le canard aussi!]" ([The tiger] [hits the duck too!]). We presented children with one of the two types of sentence above, while they watched two simultaneous videos, one depicting the interpretation of the transitive sentence, and another depicting the interpretation of the stripping sentence. The results show that 3-4-year-olds look significantly more at the appropriate video, and thus can use phrasal prosody to guide their syntactic analysis and to correctly distinguish stripping from transitive sentences. These results add to the growing body of evidence on the important role of prosody in constraining parsing in young children.

Day 3: November 7, 2020
(Evening session)
Session A: Phonetics & Phonology

7:00 PM – 7:30 PM
Processing and attrition of tone and vowel in Mandarin-English bilinguals of varying proficiency
Sarah Elkinton; Sarah Creel; Judith Kelholt; Diana Yuen; Carolyn Quam

Mandarin-English bilinguals must attend to tone or not, depending on language context, suggesting English exposure could weaken Mandarin tonal processing. A previous study (Quam and Creel, 2017) found that English-dominant native-Mandarin speakers showed attrition in their processing of Mandarin words pairs that differed by tone, but not vowel. We investigated this selective attrition effect across two eye-tracking experiments which measured clicking accuracy, reaction time, and gaze. Experiment 1 (N=61) replicated the findings of the previous study. Experiment 2 (in progress; N=31) used a larger stimulus set including Mandarin vowel contrasts not used in English. In both experiments, performance was better in vowel-differentiated than tone-differentiated trials. Attrition effects were only found in Experiment 1. However, in Experiment 2, performance was better overall for vowel contrasts used in English than non-English vowel contrasts. We expect to see effects of language dominance (i.e., attrition effects) with additional English-dominant participant recruitment.

7:30 PM – 8:00 PM
Infants are sensitive to phonotactic patterns in their native language at 5-months
Megha Sundara; Canaan Breiss

A prevalent view is that infants learn language-specific phonotactics from a segmented proto-lexicon. We present data from two infant experiments and one adult experiment that challenge this developmental trajectory. We first demonstrate that two measures confounded in classic experiments on phonotactics, unigram and bigram probability, independently predict adult phonotactic judgments. Using these results, we identify 4 sets of stimuli which contrast maximally on these two dimensions, and tested infants using the Headturn Preference Procedure. 5-month-olds listened longer to lists with high compared to low unigram probability items, as well as longer to lists with high compared to low bigram probability items. Our results show that, when the contribution of individual lexical statistics to phonotactic acceptability is isolated, infants are sensitive to this information at the earliest age at which they have been shown to segment words, suggesting infants extract language-specific phonotactic probabilities from the unsegmented speech stream, not a lexicon.

8:00 PM – 8:30 PM

The acoustic realization of vowels and tones in Mandarin infant-directed speech: More variable and less discriminable
Ping Tang; Nan Xu Rattanasone; Ivan Yuen; Katherine Demuth

It has been found that in infant-directed speech (IDS), vowel spaces were expanded. Such expansion was typically interpreted as an indication that vowels in IDS are hyperarticulated and acoustically more discriminable. However, this interpretation has been challenged by a study on Japanese IDS showing that, althogh vowel space in IDS was expanded, vowels in IDS are indeed more variable, resulting reduced discriminability of vowels in IDS. However, it was unclear whether this finding is generalizable to other languages and other linguistic units. The current study compared the realization of Mandarin vowels and tones between IDS and adult-directed speech (ADS). The results showed that, although both tone and vowel spaces were expanded in IDS compared to ADS, tones and vowels in IDS are more variable and acoustically less discriminable. Our results thus pose further challenges to the claim that speech units are hyperarticulated in IDS.

8:30 PM – 9:00 PM

The acquisition of temporal cues to onset and coda voicing contrasts in children with hearing loss
Julien Millasseau; Laurence Bruggeman; Ivan Yuen; Katherine Demuth

Voicing contrasts in English are critical to differentiate word meanings in both onset and coda positions. However, children with hearing loss (HL) often make voicing errors in both word positions when compared to their peers with normal hearing (NH). Moreover, these difficulties vary as a function of device type. Altogether, this raises questions about how children with HL acoustically realise these voicing contrasts and how the device type affect their productions. Sixteen 4-5-year-olds with HL were tested (8 hearing aid (HA) users and 8 cochlear implant (CI) users) and compared to age-matched children with NH. Results showed that 4-5-year-olds with HL have a clear voicing contrast in onset position. However, only those with HAs seem to have a voicing contrast in coda position. This raises questions about the coda representation of the children with CIs. The clinical implications are discussed.

Day 3: November 7, 2020
(Evening session)
Session B: Syntax & Semantics

7:00 PM – 7:30 PM

Unaccusativity in Mandarin child language
Kaiying Lin; Kamil Deen

Since Perlmutter (1978), unaccusativity has been recognized as a central property of intransitive verbs. The Unaccusative Hypothesis claims that some verbs have no subject, but the object moves into subject position, giving the illusion of a subject. Sorace (2000) shows that such verbs occur in a hierarchy, with some verbs showing a higher propensity towards unaccusativity than others. The current study shows that children acquiring Mandarin (i) succeeded in two diagnostics of unaccusativity, though upon closer examination, (ii) they show strong knowledge of unaccusativity with those verbs that are high in Sorace's hierarchy, but less so with verbs lower in the hierarchy.

7:30 PM – 8:00 PM

Non-interrogative use of wh-words in Mandarin distinguishes between children with Developmental Language Disorder and language impaired children with autism
Rui Huang; Jeannette Schaeffer

This study reports experimental data on the non-interrogative use of Mandarin-Chinese wh-words in children with Autism and Language Impairment (ALI) and children with Developmental Language Disorder (DLD), both without intellectual disability (ID). We argue that while both groups show a deficit in the grammatical properties of non-interrogative wh-words, only the ALI group demonstrates problems with prosody.

8:00 PM – 8:30 PM

The distributional learning of recursive structures
Daoxin Li; Lydia Grohe; Petra Schulz; Charles Yang

For a syntactic process such as the possessive structures "X's Y" and "Y of X" to be recursive, children must be able to detect that the structural positions of X and Y are productively interchangeable. By the application of the Tolerance Principle, we present input corpus analyses to show that such detection is possible with simple one-level embedding data. The recursive possessive structures in Chinese, English, and German are learnable, as a sufficiently large number of nouns appear in both possessor and possessum positions to meet the productivity threshold. At the same time, the non-recursive possessive structures in these languages (e.g., "X's Y" in German) are also learnable. However, as the input data fail to reach the productivity threshold, children do not generalize beyond one-level embedding. Our results suggest that the recursivity of a structure can be learned distributionally from language-specific level-one experience.

8:30 PM – 9:00 PM
The Comparative-Superlative Generalization in child language
Lyn Tieu; Nichola Shelton

English comparatives and superlatives are typically formed by adding –er and –est to adjectives, respectively (e.g., tall-taller-tallest). Yet there are exceptions involving suppletion (good-better-best). Surveying 300+ languages, Bobaljik (2012) observes the 'Comparative-Superlative Generalization' (CSG): if the comparative degree is suppletive (good-better), the superlative is also suppletive (best), and vice versa; thus AAA and ABB are possible patterns, but not *ABA or *AAB. Bobaljik proposes a structural constraint: the superlative universally contains the comparative [[[Adj]Comp]Sup]. Adults have been shown to adhere to the CSG when producing novel forms (Donegani 2016); but adults have learned suppletive patterns like good-better-best. We turn to children, who have considerably less experience with suppletion. The results of three experiments reveal that 4-year-olds, despite having less experience with suppletive forms than adults, are similarly sensitive to the CSG in their production and comprehension of novel comparatives and superlatives – providing additional support for Bobaljik's universal morphological constraints.

Day 3: November 7, 2020
(Evening session)
Session C: Word Learning

7:00 PM – 7:30 PM
Testing the roles of regularity and lexical class on toddlers' spoken word recognition
Charlotte Moore; Elika Bergelson

Previous work examining toddlers' spoken word recognition has focused on regular nouns. How do toddlers represent words with multiple surface-forms that affect their nuclear vowel (e.g. goose~geese, run-ran), and does lexical class matter?

Across 3 eyetracking studies, we tested this question by manipulating regularity and pronunciation. In study 1, 18-month-olds looked less at mispronounced referents for all tested nouns, suggesting robust representations for even irregular nouns.

Conversely, in Study 2a (which examined verbs), 18-month-olds showed no effect of mispronunciation, but showed a strong preference for regular verbs and low comprehension overall. We thus tested 26-month-olds in Study 2b.

Eight months older, the 26-month-olds showed the same trend as the 18-month-olds in Study 1: toddlers looked less at mispronounced verbs, regardless of regularity. Taken together, our results suggest that once toddlers understand words well, they are sensitive to vowel mispronunciations, regardless of words' regularity.

7:30 PM – 8:00 PM
Asking and answering: Questions promote active learning of novel words
Caroline Gaudreau; Hannah Puttre; Gabriella Araneta; Maria Kaliakin; Kathy Hirsh-Pasek; Roberta Golinkoff

The current study tested whether toddlers would learn novel words better through questions than declaratives. In a within-subjects design using the Intermodal Preferential Looking Paradigm, toddlers watched a video in which they were taught labels for four novel objects using questions (e.g., Where's the glorp?) and declaratives (e.g., That's the glorp!) in two blocks of trials. Results indicated that in the first block of test trials, children looked at the target objects taught through questions for a significantly higher proportion of time than objects taught through declaratives. Children also vocalized on a higher proportion of question trials than declarative trials both in training and at test. Crucially, in both blocks, toddlers pointed more to the target object in question than on declarative test trials. Finally, in a live object selection task, children performed above chance for objects originally taught through questions in the first block of the video.

8:00 PM – 8:30 PM

Maternal repetition and expansion of child utterances at the outset of combinatorial speech promote growth in MLU

Elizabeth Che; Patricia Brooks

Repetition and expansion of a child's utterances may serve as a critical form of feedback promoting growth in language complexity. This study examined its differential impact at the transition from single-word to multi-word speech. Using archival data from CHILDES, we ran cross-lagged regression models to predict language complexity (mean length of utterance [MLU]; developmental sentence scores [DSS]) over time. Across four corpora, maternal repetition of child's utterances at 18–20m predicted MLU at later ages. Across three corpora, maternal repetition at 18–20m predicted DSS at later ages. In contrast, maternal repetition at 27–30m was unrelated to MLU or DSS at later ages. The results indicate that repetition and expansion of child utterances had beneficial effects at the onset of combinatorial speech (~ages 18–20m), but not later. The findings replicate across disparate samples and two measures of language complexity, underscoring the value of CHILDES in promoting reproducibility as normative, scientific practice.

8:30 PM – 9:00 PM

Robots are distracting: Word learning with and without social interaction

Kristyn Sommer; Charlotte Casey; Janet Wiles; Paola Escudero

Social robots may aid children's ability to learn from digital devices given inherent social features. Thus word learning from a digital device employing varying levels of social information provided by either human or robotic sources was investigated. Preschool children listened to an eBook told on a tablet presented to them alone or held by either a person, a dynamic robot or a static robot. Challenging word pairs were embedded within the story and children's ability to accurately identify the correct word was tested in easy (low phonological overlap) and difficult trials (high phonological overlap). Children learned easy word pairs better than difficult word pairs. However, children's performance varied on the basis of the social information provided. Children's greatest word learning occurred when the story was presented to them on the tablet alone. Thus, the current study suggests that additional social information appears to distract children's attention from the task.

(Morning session)
Session A: Sentence Processing

10:00 AM – 10:30 AM
Engaging cognitive control helps children ignore unreliable sentence processing cues
Zoe Ovans; Jared Novick; Yi Ting Huang

Children often make early commitments to sentence structure and sometimes fail to revise them. While prior research broadly ascribes this to children's limited cognitive-control development, less is known about how in-the-moment cognitive-control engagement affects children's sentence processing. Engaging cognitive-control with a Stroop-like task before interpreting garden-path sentences improves revision for adults but can hinder it for children. Why this discrepancy? We argue that cognitive-control engagement may help children ignore early cues (e.g., an agent-first bias) that do not reliably predict structure (e.g., in passives). Consistent with this, non-linguistic Stroop tasks show that cognitive-control engagement temporarily makes children better at disregarding task-irrelevant cues. Across 3 eye-tracking experiments, we interleave child-friendly Stroops and active/passive garden-path sentence comprehension trials. When the sentences generate an agent-first bias, cognitive-control engagement helps 5 year-olds recover from their incorrect parses. These findings indicate that real-time cognitive-control engagement helps children ignore unreliable parsing cues during comprehension.

10:30 AM – 11:00 AM
Children's event representations are driven by verb tense
Boyang Qin; Marieke van Heugten

Spoken language comprehension involves actively updating our mental representations as sentences unfold. For adults, these representations are constrained by verb information. However, it is unclear to what extent this also applies to children. Previously, we found that children's event representations are modulated by verb type (stative vs non-stative). Here, we examine whether verb tense (future vs. past) can similarly alter the inferred object state. Using the Preferential Looking Paradigm, two images depicting the same object but in different object states (e.g., intact vs. cracked egg) were presented while children listened to sentences (e.g., "David's gonna crack/cracked the egg") including verbs in either past or future tense. Following noun offset, children looked more to the image displaying the completed action (e.g., cracked egg) when hearing past rather than future tense sentences. This demonstrates that verb information is used to update object states, suggesting that children's event representations are fine-grained in nature.

11:00 AM – 11:30 AM

19 month-olds parse wh-questions incrementally
Mina Hirzel; Laurel Perkins; Jeffrey Lidz

Prior research has found variable success in the interpretation of filler-gap dependencies between 15- and 20-months. In some studies, children successfully interpret wh-questions without associating the wh-phrase with the gap in the syntax, making it hard to assess the age of acquisition. Recent work shows that 18-month olds, unlike 15-month-olds, are aware of the complementary distribution of wh-phrases and NPs in argument position, leading to the conclusion that this filler-gap dependency is in place at 18-months. Here, we show further that 19-month-olds associate wh-phrases with their gap positions immediately upon encountering the verb.

11:30 AM – 12:00 PM

What matters in processing of scrambling: Cross-populational investigation in Russian
Irina Sekerina; Glenn Stark

We compared 3-word canonical SVO and scrambled OVS sentences in 3 groups of Russian speakers (monolingual adults, children, bilingual heritage adults). In the Visual World paradigm, participants viewed a event picture paired with either a SVO or OVS sentence. There was an effect of Group in Accuracy. HL speakers patterned (93%) between monolingual adults (99.4%) and children (83%). Word Order and Age of Arrival were significant predictors of HL accuracy (SVO > OVS), but no such effects were found for children. Then we conducted a bootstrapping analysis of eye movement and estimated confidence intervals for divergent points in anticipatory looks to the Agent between SVO and OVS: 600 ms for monolinguals and 467 ms for HL bilinguals (before N2 Subject); but no divergent point for children. Thus, a complete theory of syntactic complexity and prediction in scrambling must integrate cognitive and developmental factors that characterize different populations.

12:00 PM – 12:30 PM

Going against verb bias: Toddlers shift parsing strategies when encountering disfluencies
Cindy Chiang; Toben Mintz

Children rely on verb bias, the likelihood a verb occurs with various sentence structures, to make predictions about how a sentence will progress. However, verb arguments do not always follow verb bias and inaccurate parses can result in misinterpretations of a speaker's intended message. Here, we investigated whether an unexplored cue, disfluencies (thee uhh), can be used by 2 and 3-year-olds to robustly and systematically anticipate non-standard argument structures. We compared participants' eye gazes towards possible verb argument as they heard either two seconds of disfluencies or construction noises (baseline condition) following ditransitive verbs. In our baseline condition, participants' odds of preferring double object dative frames parallel findings from prior studies, varying both by children's familiarity with the verb and its verb bias.

In our disfluency condition, these trends flipped. These findings suggest that toddlers can robustly use disfluencies as a cue to anticipate alternative structures.

Day 4: November 8, 2020
(Morning session)
Session B: Semantics & Pragmatics

10:00 AM – 10:30 AM
Children's interpretation of additive particles mo 'also' and also in Japanese and English
Hisao Kurokami; Jeffrey Lidz; Valentine Hacquard; Daniel Goodhue

Additive particles (e.g., Japanese mo 'also' and English only) are focus-sensitive operators that trigger an additive presupposition.
   (1) Donald also ate a BANANA
      For example, sentence (1) not only asserts that Donald ate a banana, but also presupposes that he ate something in addition to a banana. Hence, additive particles are most naturally used in a context that supports their additive presupposition (e.g., (1) should be used in a context where Donald ate both an apple and a banana). However, previous studies tested children's interpretation of additive particles in contexts where the presupposition was either false or unsupported (and hence had to be accommodated). This study introduces a novel task to test Japanese- and English-learning preschoolers' interpretation of objective-associated *mo* and *also* in contexts that support their presupposition. Although they aren't perfectly adult-like, our results show that children are sensitive to the additive presupposition of *mo* and *also*.

10:30 AM – 11:00 AM
How do preschoolers comprehend contrastive vs. descriptive adjectives pre- and post-nominally?
Catherine Davies; Jamie Lingwood; Bissera Ivanova; Sudha Arunachalam

This visual world study investigates how English-speaking 3-4 year-olds process scalar adjectives across a range of syntactic and pragmatic contexts. We ask:
   1. Do preschoolers integrate adjectives and nouns to reliably resolve reference?
   2. Is there an association between preschoolers' language ability, their speed of processing, and their contrastive inferencing ability?
   3. Do preschoolers draw contrastive inferences?
   4. Do preschoolers process modified noun phrases more efficiently when adjectives occur pre-or post-nominally?
      This comprehensive study answers several questions within the same experiment, thus ruling out methodological explanations for discrepancies in previous research. For the first time, we show that while preschoolers can reliably integrate adjectives and nouns, they do not draw contrastive inferences, nor harness syntax to boost incremental processing.

11:00 AM – 11:30 AM

4- and 5-year-olds use mental models of events in reference resolution
Amanda Rose Yuile; Cynthia Fisher; Cynthia Fisher

Can children use a situation model to guide reference resolution? In an eye-tracking comprehension task, 4- and 5-year-olds and adults heard stories while viewing pictures of story participants. Each story involved a protagonist (Maisy) and two animals. In the critical sentence, Maisy asked one animal to play with her: "She asked the bunny..." We varied whether the story introduced two potential referents for the target noun (two bunnies), and whether the story stated that one had left the scene. In ambiguous trials, children and adults looked about equally at the target and distracter animals. In unambiguous trials, they preferred the target animal both in trials with only one potential referent (one bunny) and trials in which one of two potential referents left the scene. These findings provide new evidence that as they listen to narratives, children determine reference using not only text-based cues but also their model of the situation.

11:30 AM – 12:00 PM

Universal free choice inferences of dou-constructions in child Mandarin
Shuyan Wang

In Mandarin, a wh-phrase followed by dou 'all' is not a wh-question but a declarative with a universal free choice (($\forall$-FC) reading. Xiang (2020) noted that preverbal disjunction followed by dou also derives a $\forall$-FC reading. According to Xiang (2020), it is the particle dou that evokes the $\forall$-FC reading of these two constructions. Some studies have found that 5-year-old Mandarin-speaking children could get the $\forall$-FC reading of wh-phrases (e.g., Huang et al. 2017; Zhou 2013, 2017). However, few studies have investigated children's command of the $\forall$-FC reading of preverbal disjunction. This paper aims to fill this gap, by providing within-subject data on the $\forall$-FC reading of wh-phrases and disjunction. The results show that 5- to 7-year-old Mandarin-speaking children show adult-like knowledge of the former but not the latter. This contrast indicates that these two dou-constructions may require different theoretical analyses, with the 'disjunction + dou' construction being more complex.

12:00 PM – 12:30 PM
Preschoolers' comprehension of the interaction of intonation and illocutionary force
Daniel Goodhue; Jad Wehbe; Valentine Hacquard; Jeffrey Lidz

This study investigates preschoolers' ability to infer the force of speakers' intended speech acts when they don't match the clause type uttered, by focusing on rising-declaratives. Prior work shows that infants are sensitive to clause type and intonational distinctions, but doesn't address speech act interpretation. We show that children deploy a sophisticated understanding of pragmatics and prosody to uncover the intended illocutionary force of speakers' utterances. This is done via the results of a comprehension task in which children helped a puppet place animals in workplaces throughout a village. In each trial, the puppet either made a statement about where an animal works, in which case the child had to place the animal in the corresponding location, or the puppet forgot and asked a question, in which case the child had to check a book containing information about each animal's workplace.

10:00 AM – 10:30 AM
Infant-directed speech becomes less redundant as infants grow: Implications for learning
Shira Tal; Eitan Grossman; Inbal Arnon

According to the communicative efficiency hypothesis, speakers aim to balance two competing pressures: minimizing production effort and maximizing understandability. While typically avoiding redundancy, speakers produce 'costlier' signals when understandability is at risk. Here, we ask whether conversing with learners (interlocutors who are typically perceived to have difficulty in comprehension) results in more redundant language. We test this by quantifying redundancy in infant-directed speech using entropy rate – an information-theoretic measure reflecting the average information content of words conditioned on all preceding words (more redundant texts have lower entropy rates). We compared the entropy rate of speech directed to 7-,11- and 24-months-olds during free play interactions, by taking 1000 samples of conversations from each age group. In line with our predictions, entropy rates increased with infant-age, indicating that parents use more redundant speech when talking to younger infants. Interestingly, the developmental decrease in redundancy stems from using less repetitive multiword sequences.

10:30 AM – 11:00 AM
Does amount of L2 exposure affect the social and cognitive skills of monolingually-raised children attending bilingual education?
Gloria Chamorro; Vikki Janke

Most research reporting that bilingual children exhibit enhanced cognitive skills and social awareness relative to their monolingual peers focuses on children raised and educated bilingually, making it difficult to pinpoint the degree of L2 exposure necessary for any advantages to materialise. This study measures the social and cognitive skills of Spanish children educated bilingually yet raised monolingually to explore (a) whether bilingual education alone confers advantages, and (b) whether greater L2 exposure is key to producing them. It compares three groups of monolingually-raised children in Year 1 of primary education (6-7 years old): one group educated in mainstream "monolingual" education, one group in English-Spanish bilingual education with a ratio of 40-60 English-Spanish exposure, and one group in English-Spanish education with a ratio of 30-70 English-Spanish exposure. Children attending bilingual education scored significantly higher than monolingual children on a sub-set of cognitive (selective attention; response inhibition) and social skills (communication; co-operation).

11:00 AM – 11:30 AM

Onomatopoeia in child-directed language and children's word learning

Yasamin Motamedi; Margherita Murgiano; Elizabeth Wonnacott; Chloe Marshall; Pamela Perniss; Susan Goldin-Meadow; Gabriella Vigliocco

The sound symbolism bootstrapping hypothesis asserts that sound symbolic words, where the sound of the word represents some property of the word's meaning, can aid children's early word learning by linking linguistic form to sensory experience. We suggest that onomatopoeia – where the sound of the word represents sound properties of the meaning – offer a special case of sound symbolism, providing a unimodal link between form and meaning. In this way, onomatopoeia should play a key role in early word learning, by highlighting that speech sounds refer to meanings in the world, and linking linguistic form to meaning through a direct sound-to-sound relationship. We present observational evidence from child-directed language and experimental evidence from children's word learning that highlights the role of onomatopoeia in children's early vocabulary development.

11:30 AM – 12:00 PM

Infant-directed input and literacy effects on phonological processing: Non-word repetition scores among the Tsimane' of the Bolivian Amazon

Alejandrina Cristia; Gianmatteo Farabolini; Camila Scaff; Naomi Havron; Jonathan Stieglitz

Do language input quantity in infancy and literacy affect phonological processing? In this study, we used a non-word repetition (NWR) group game to assess phonological processing in adults and children living in two villages of an ethnic group where infants are rarely spoken to, and where literacy levels are variable but low on average: The Tsimane' of lowland Bolivia. The NWR task was presented as a group game, in which the experimenter said an item and each member of the group repeated it. We found lower NWR scores than in previous work for both children and adults, consistent with the hypothesis that there are long-term effects of experiencing low levels of infant-directed input on phonological processing. Additionally, we found some evidence that literacy is related to NWR scores. Given the scarcity of data on language development in non-Western cultures, we hope to stimulate further investigations in similar communities.

12:00 PM – 12:30 PM
How L1 acquisition in situations of contact drives long-term language change
Hannah Forsythe; Grant Rodgers Kemp

Recently, engagement between sociolinguists and acquisitionists has increased, promising new insights for both. In particular, acquisitionists stand to gain a better understanding of children's role in driving language change by studying how they acquire variation in situations of contact. Here, we ask how contact between Paraguayan Spanish (PS) and the standard variety Rioplatense Spanish (RpS) in one immigrant neighborhood of Buenos Aires affects children's acquisition of variable subject pronoun expression. We find that when contact produces intra-speaker variability in the input, children innovate, leading to change in the long run. When contact does not increase variability, however, children match their input, leading to stable variation. We argue that these L1 dynamics explain which long-term language changes are (and are not) commonly observed in adult varieties of Spanish.

Poster Session 1

November 5, 2020
12:30 PM – 2:00 PM

Accessing the mental lexicon by visual speech cues: A priming study of children's speech production
Theresa Rabideau; Samantha Habros; Sierra Beatty; Henny Yeung; Tania Zamuner

Listeners are exposed to both auditory and visual cues during speech processing. It is still not well understood how linguistic information from visual speech is processed across development. We created a primed picture naming task to investigate whether 4- to 6-year-old children are able to use visual speech cues (i.e. lip reading) to access words from their mental lexicon during spoken word production. We used two priming conditions: Repetition condition and Unrelated condition and three speech modes for the primes: Audio-Visual speech, Visual-Only speech, or Audio-Only speech. In the Visual-Only speech mode condition, 5-year-olds and 6-year-olds had shorter mean SRTs for targets in the VO-Repetition vs. VO-Unrelated condition. However, the 4-year-olds showed the opposite pattern. Our results coincide with research that suggests that visual speech advantages increase with age. We provide new evidence that visual speech contributes to not just prelexical processing, but also lexical processing.

Acquisition of grammatically and socially conditioned phonological variation
Betsy Sneller; Elissa Newport

We report a series of artificial language learning experiments designed to test child and adult learners' abilities to acquire phonological variation. Previous work on experimental morphology (Hudson Kam & Newport 2005, 2009; Schuler, Yang & Newport, 2016) has found that young children regularize inconsistent input, while adults reproduce and match variation in their input. Here we investigate whether phonological variation of three different input structures (deterministic conditioning, unconditioned variation, and probabilistic variation) and two different conditioning types (social vs. grammatical) exhibits a similar age pattern. We find a clear effect of age, with the youngest children showing a strong tendency to regularize to the stem form, adults probability-matching, and intermediate-aged children learning correct conditioning but not matching the input probabilities. The results suggest that young children may begin acquisition by mastering the more consistent parts of grammatical and social structure, with probabilistic variation acquired in later stages of acquisition.

Acquisition of numerals, the natural numbers, and amount comparatives
Martin Hackl; Ella Apostoaie; Leo Rosenstein

The present paper examines the relation between knower-levels and the comprehension of various amount-comparative constructions (basic comparatives, comparative quantifiers, and differential comparatives), to assess whether being an 'n-knower' entails knowing all or only some of the properties of 'n', including arithmetic properties such as additivity. Focusing on 5-knowers/CP-knowers, we observe that both comparatives "The snake has more pizzas than the frog.", and comparative quantifiers "The snake has more than three pizzas.", are comprehended in an adultlike manner. Differential comparatives "The frog has two more pizzas than the tortoise." by contrast are systematically simplified into "The frog has two pizzas.", replicating a finding in Arii et al, (2017). Unlike the aforementioned study, but similar to Davidson et al, (2012), we argue that the source of this comprehension difficulty is incomplete number knowledge, rather than linguistic in nature.

The acquisition of possession in Inuktitut: Insight from child and caregiver speech
Leah Doroski; Heather Littlefield; Shanley Allen

Children start producing possession utterances early and go through developmental stages as they acquire the relevant inflectional system (Brown, 1973). In many languages, early possession forms are built with units of the target form (Marinis, 2016). In contrast, early possession forms in one polysynthetic language used a novel non-target construction (Cree, aged 2;1-3;8; Henke, 2019). Do other polysynthetic languages show the same pattern?

We investigated possession development in three children acquiring Inuktitut, another polysynthetic language. The children (aged 2;0-2;9, 2;6-3;3, 3;7-4;4) showed no obvious stages in acquisition of the possession system, but rather already showed patterns of possession relationships that were astonishingly similar to those of their caregivers in terms of overall possession use, the constructions of constituents, and types of possessor and possessee forms. Polysynthetic versus non-polysynthetic is perhaps not a crucial distinction in structural development of possession forms.

Age of acquisition effects on verbal fluency in Turkish Sign Language
Onur Keleş; Furkan Atmaca; Kadir Gökgöz

This study explored age of acquisition effects in Turkish Sign Language on verbal ability and executive control, based on both semantic and phonological fluency task performances of deaf adult early and late signers through analyses of correct responses, mean latencies, and time course. The chosen categories for the two tasks differed in their difficulty. The results indicated that early first language acquisition led to an increased number of correct responses but revealed no relation with the time intervals. Furthermore, both groups maintained close subsequent response times. The difficulty settings were also equidistant from one another: as difficulty increased, the number of words produced decreased. Our findings suggest that language deprivation may result in smaller sign vocabulary. We conclude that late acquisition has a persisting effect into adulthood on the selective attention subcomponent of EF, which in turn may result in slower vocabulary development, but signers' updating abilities remain intact.

Analyzing emotion in language input: Caregivers' cues to valence support toddlers' learning of emotion words
Mira Nencheva; Diana Tamir; Casey Lew-Williams

Studies linking children's language input to word learning have predominantly focused on nouns and verbs (and their corresponding objects and actions). Less is known about learning abstract words, such as emotions, whose meanings encompass complex continuous dimensions, such as the degree of positivity or negativity (valence). Here we seek to understand how valence cues in caregivers' input support children's emotion label acquisition. Two studies apply sentiment analysis, a computational measure of the valence of words, to quantify the representation of valence in children's emerging vocabulary and in caregivers' language. We found that the increasingly wider continuum of valence in children's vocabularies predicted their production of emotion labels, and further, that caregiver cues to emotion supported children's production of the label in appropriate contexts. This investigation provides a new technique for defining the 'quality' of language input through complex patterns of words and contexts to trace the emergence of abstract meanings.

Children and adults condition variable rules on social context
Kathryn Schuler

Variable rules are particularly challenging for acquisition because they are not consistently applied: whether or not to use a given form can be conditioned on a complex combination of internal (articulatory and grammatical) and external constraints (stylistic and social). We know children eventually master the constraints on variable rules, but precisely how this process proceeds is unclear. Here we ask, when two cues are equally available, do children privilege an internal constraint, engaging their well-known phonology bias, or an external one, focusing instead on the social context? We find that both children and adults prefer to condition a variable rule on social context when that context is particularly salient.

Children's comprehension of two-level recursive possessives in Japanese and English
Diego Guerrero; Terue Nakato; Joonkoo Park; Tom Roeper

Previous studies in languages where the possessive is morphologically marked show an early acquisition of two- and three-levels of recursive possessive at four years of age. Experimental paradigms in those studies, however, contain spatial and semantic cues that arguably make the comprehension of recursion easier. This study investigates children's comprehension of two-level recursion in a novel paradigm that controls spatial and semantic cues and is designed to evaluate the distinction between children's comprehension of recursion and that of conjunction. Forty-five English-speaking children (3.9–9.2-year-old) and 41 Japanese-speaking children (6.6-8.8-year-old) were tested in the possessive task and a working memory task. Both groups comprehended recursion around 7.5 years. The age gap between this study and previous studies suggest that the cues used in previous studies had an influence on children's performance. As in previous studies, however, children who failed to understand recursion consistently interpreted recursion as conjunction.

Collective-distributive interpretations in bilingual Spanish-English-speaking children
Anne Lingwall Odio; John Grinstead

The present study investigates distributive and collective interpretations of Spanish quantifiers "cada" (each) and "unos" (some) among age-matched, monolingual and bilingual typically-developing children. Participants were presented with a video-recorded Truth-Value Judgement Task (Crain & McKee 1986), including 12 experimental items with the Spanish plural determiner "unos" presented half in collective contexts and half in distributive contexts and another 12 experimental items with the Spanish distributive universal quantifier "each", again in the same contexts. Children were also given the Spanish Peabody lexical measure (Dunn et al. 1986) and the Flanker test of inhibition. Results show that bilingual children had greater inhibition scores and lower lexical scores than monolinguals. Monolinguals generated more collective implicatures (less acceptance of "unos" in distributive contexts) than bilinguals. Lexicon, not executive function, was predictive of collective and distributive judgments. These findings lend greater clarity to the roles played by lexicon and executive function in scalar implicature generation.

Development of children's understanding of counterfactuals
Maxime Tulling; Ailís Cournane

Understanding counterfactual conditionals ("If pigs had wings, they would fly") and wishes ("I wish pigs had wings") requires complex cognitive and linguistic abilities. Children need both the executive functions to hold multiple possibilities in mind while considering a false possibility temporarily true, and the ability to see through the "fake" past tense in these constructions, as the counterfactual past morphology ("had") expresses non-actuality rather than past temporal orientation. In this study we employed a referent selection task to see whether 3-5-year-olds understand counterfactual wishes before they understand counterfactual conditionals, and whether they ever mistake the counterfactual "fake" past for real. Preliminary results suggest that counterfactual wishes are easier to understand than counterfactual conditionals, and that performance improves with age. More data is needed to see whether participant's past responses on counterfactual items are due to them interpreting the "fake" past tense as real.

The development of object shift in Icelandic child language
Filippa Lindahl; Sigríður Sigurjónsdóttir

Object shift (OS), an operation where an object is moved leftward across a sentential adverb, is acquired late in mainland Scandinavian and is not in place until age 5–6 (Josefsson 1996; Anderssen et al. 2010; Anderssen et al. 2012). This paper presents the first study of the development of OS in Icelandic child language. Longitudinal data from two children and shorter language samples from 63 children indicate that Icelandic OS is acquired comparatively early (around age 3–4). Building on the previous studies on mainland Scandinavian, where the delay in acquisition is argued to be due to complexity and low frequency in the input, we suggest that the early acquisition in Icelandic is connected to the uniformity of Icelandic OS. Unlike in mainland Scandinavian, where pronouns with clausal/VP antecedents usually do not shift and demonstratives are never shifted, Icelandic OS is consistently applied to all definite pronouns.

Distributional properties of the input affect syntax learning for children with Developmental Language Disorder, but not Typically Developing peers
Amanda Owen Van Horne; Kristina Strother-Garcia

Understanding the role of the distribution of individual lexical items on syntax learning is critical for discovering language learning mechanisms. Here, we ask which of three input conditions promote learning in children with Developmental Language Disorder (DLD) and typically-developing (TD) peers. Scientific evidence that high input variability promotes learning contrasts with clinical practice, wherein carrier phrases minimize variation. Skewed distributions provide a middle ground in natural language and enhance learning in TD populations (Casenhiser & Goldberg, 2005). Children were selected based on low accuracy on targets, exposed to different distributional patterns via carefully written stories to ensure consistent input patterns, and then retested to document learning. The TD group learned twice as much as the DLD group and learned in all training conditions. The DLD group only learned in the low variability condition, findings at odds with earlier work that high variability promotes learning in DLD (Plante et al. 2014).

The effect of lexical contrast on phonological development
Aletheia Cui

This study investigates the roles of minimal pairs, frequency, phonotactic probability, and word length in the acquisition of phonology. Using the orthographic and phonetic transcriptions of child utterances from the Providence Corpus, several word and phoneme measures were extracted for each child to evaluate their effects on child production accuracy. On both the word level and the phoneme level, minimal pair counts are significant predictors of production accuracy, and the lack of frequency effects is also consistent. The results of this study provide compelling developmental evidence that lexical contrast, as quantified by minimal pairs, is a crucial and linguistically relevant cue in the acquisition of phonological distinctions. Future studies need to consider the quality of cues as well as the quantity of cues to better understand phonological development in first language acquisition.

How do construction frequency effects modulate L2 priming?
Irati Hurtado; Silvina Montrul

We conducted a syntactic priming experiment in order to make intermediate Spanish L2 speakers (L1 English) produce passive constructions and clitic constructions, as previous studies have shown they barely use them in oral contexts. In doing so, we looked at whether construction frequency in Spanish played any role in the magnitude of priming. According to the Shared-Syntax Model, syntactic representations are shared between the two languages in advanced L2 speakers, so L2 construction frequency should modulate the priming effect. However, studies with lower proficiency L2 speakers are needed to understand how priming operates at earlier stages of interlanguage development. In our study, we found a significant effect of L2

construction frequency, which is consistent with previous studies that tested advanced L2 speakers. Our results also support the Shared-Syntax Model.

Infant temperament and parental aggravation predict vocabulary growth through age nine
Zachary Bergson; Patricia J. Brooks

Demographic factors (e.g., socioeconomic status, maternal education, and minority status) are salient in research examining individual differences in language development. Despite their significance, demographic factors do not fully explain the variability evident in children's abilities; moreover, the underlying mechanisms by which they impact language development are often indirect. Examining individual-level factors, such as infant temperament and parenting stress, adds crucial information that may explain variability in developmental outcomes. Using secondary data from the Fragile Families and Child Wellbeing study, we used mixed-effect models to analyze longitudinal effects of temperament and parenting stress at age 1 year on vocabulary growth from ages 3 to 9. After controlling for demographic factors, infant temperament and parental aggravation predicted receptive vocabulary scores through age 9. The findings indicate the long-term impact of parent-infant dynamics on growth trajectories, underscoring the importance of social-emotional support for families with young infants to ensure their children's optimal development.

Infants' online processing of sung and spoken language
Emily Barker; Marieke van Heugten

Within their first years of life, infants rapidly acquire a native language lexicon that can be used to recognize words from continuous speech. However, despite the prevalence of music in our daily lives, and despite research with adults reporting decreased intelligibility of words presented in song, little is known about children's ability to access words produced in sung contexts. To start addressing this issue, the current study uses the Looking While Listening Procedure to test English-learning 24-month olds' ability to recognize words in both sung and spoken language. Children were found to recognize familiar words in sung contexts, in a manner that appears to be similar to their comprehension of familiar words in spoken language contexts. Thus, sung language needs to be considered a significant source of linguistic input when studying language development.

Input variability and the late-acquisition of Brazilian Portuguese subject bare singulars
Raíssa Silva Santana; Elaine Grolla

In Brazilian Portuguese, bare singulars (BSing) are legitimate in subject position of generic and kind-predicate constructions. However, they are degraded in the subject position of episodic constructions. These data suggest that Chierchia's Nominal Mapping Parameter is empirically problematic. In the present study, we follow Costa et al., who claim that input variability induces delays in acquisition. The variability found in BrP input with respect to BSing leads us to predict that children will be delayed on their acquisition. We conducted a between-subject acceptability judgment task with 24 native adult speakers of BrP and 44 BrP-acquiring children. Children overaccepted BSing in episodic constructions, indicating that they are not adult-like by the age of 7;0. These results indicate that Costa et al.'s hypothesis regarding input variability is on the right track. BSing presents a challenge to BrP-acquiring children, as their acceptability depends on the predicate they saturate.

Interaction of lexical and morphological aspect in L1 English L2 Spanish
Jeanne Heil

English and Spanish differ with regards to morphological aspect. This study investigated whether L2 learners of Spanish who are English natives exhibit English-like aspectual restrictions in Spanish on a truth value judgment task (TVJT). English monolinguals and intermediate L2 Spanish learners completed a TVJT where each context contained a stimulus with either a dynamic or stative verb varied by stimulus type: future with auxiliary, periphrastic future, or present. Results showed that L2 learners had remapped lexical aspect but not morphological aspect in intermediate L2 Spanish, suggestive of a need for pedagogical intervention.

Korean and English verb learning in transitive frames
Huanhuan Shi; Angela Xiaoxue He; Hyun-joo Song; Sudha Arunachalam

Children can use linguistic context to learn verbs. The properties of linguistic contexts, such as word order and argument drop, vary cross-linguistically. English has SVO order and rarely permits argument drop; Korean has SOV order and allows argument drop. We examined how these factors affect verb learning. In two verb learning experiments with English-speaking and Korean-speaking 2- to 5-year-olds, we found no difference between English and Korean learners in verb learning from transitive sentences (SVO in English, SOV in Korean), but we did find that Korean learners performed better with an overt subject that a dropped subject. The results suggest that more informative contexts may be better than less informative contexts for verb learning.

Lexicon, ANS and symbolic estimation
John Grinstead; Melissa Nieves Rivera; John Opfer

A logarithmically transformed fundamental component of the number sense, the Approximate Number System, can be measured using the non-symbolic number-line task. The proportion of logarithmicity in these estimates appears lower on symbolic estimates than on non-symbolic estimates, on our theory, because the natural language quantifier used in the Symbolic Task makes visual quantity estimates discrete. A mediation analysis shows that indeed the lexicon is a significant mediator between the two estimate types, which is consistent with our hypothesis that our species, unlike non-human animals, uses the lexicon to refract continuous quantity estimates, through natural language quantifiers.

A negative concord stage in the acquisition of negative polarity items
Kathryn Davidson

The acquisition of negative polarity items (NPIs) like English 'any', 'yet', etc. is notable for children's early adult-like behavior. In this paper I suggest that while this is mostly correct, properties of this particular phenomenon (namely the co-occurrence of NPIs in negative contexts) have masked an interesting stage that has yet to be discussed in detail. Among children 2;5-3;5 there is corpus evidence for children misanalyzing NPIs like 'any' as a quantifier with negative meaning, in a ("flexible", e.g. French-like) concord relationship with sentential negation. I discuss empirical tests of this hypothesis and implications of such a misanalysis for possible historical change among NPIs and negation in English.

Neural sensitivity to local and global distributional information in speech changes as a function of development
Yi-Lun Weng; Julie Schneider; Zhenghan Qi

This study aims to understand whether and how the neural sensitivity to distributional cues in speech changes from childhood to adulthood. We used an auditory oddball paradigm and mismatch negativity (MMN) and late discriminative negativity (LDN) to measure listeners' sensitivity to deviant probability. Results show that adults present a late negativity in stimuli with high-local probability, but a trend towards a P300 in stimuli with low-local probability, suggesting a shift from pre-attentive to attentive detection of the global probability. Children only presented a significant LDN which was modulated by the global probability. Importantly, the significant group x global x local interaction confirmed a developmental difference between children and adults in processing global and local probabilistic information. These results suggest the processing of global probabilistic information distributed in speech is automatic in children, while the P300-trend in adults indicates detection of global probabilistic might be facilitated by more attentive processes.

Non-actional passives can be comprehended by 4-year olds
Adam Liter; Jeffrey Lidz

English-acquiring children have difficulty comprehending passives of non-actional verbs, such as "forget", until 5 or later (e.g., Maratsos et al. 1985). Many have hypothesized that English-acquiring children lack grammatical knowledge of the passive (e.g., Borer & Wexler 1987, 1992; Fox & Grodzinsky 1998; Wexler 2004; Snyder & Hyams 2015). We report experimental evidence that 4-year olds can comprehend passives of non-actional verbs, if their use is licensed by the context. The "by"-phrase of an English passive normally carries narrow focus; it is most naturally used when what is at issue is the content of the "by"-phrase. We conducted a TVJT with stories where there were always three potential forgetters. 4-year olds performed significantly above chance on the passive trials. 4-year-old children do have grammatical knowledge of passives; their failure to comprehend them in previous studies is due to discourse-inappropriate use.

Number, lexicon and collective-distributive interpretations
Ramón Padilla Reyes; John Grinstead; Melissa Nieves Rivera

Interpretations of distributive and collective sentences, as in: "{Each child} vs. {Some children} built a snowman." become adult-like for children at 10 or 11 years-old (e.g. Brooks & Braine 1996). Studies show that across development, children's adult-like judgments of distributive sentences predict their collective judgments (Pagliarini et al. 2012). In addition, collective and distributive judgments are predicted by lexical development (Grinstead et al. 2018). Where must the denotative content of a collective-distributive quantifier originate, though? Currently, we ask whether distributive and collective quantifiers also refract the continuous ANS through the lexicon. We conclude that the lexicon provides a vehicle for the non-linguistic, quantitative ANS computation to be expressed as the distributive cada quantifier. The resulting distributive entailment, drives a collective interpretation for the unos quantifier, which though inherently ambiguous between collective and distributive interpretations, becomes collective by a Gricean informativeness pragmatic judgment, with respect to the distributive entailment of cada.

Observing negation: Artificial and naturalistic Human Simulation Paradigms
Victor Gomes; Yubin Huh; Susan Goldin-Meadow; Roman Feiman; John Trueswell

Children are delayed in production and comprehension of truth-functional negation (e.g., "A raven is not a writing desk.") compared to other kinds of negation (e.g., rejection, nonexistence) [1-3]. Given that truth-functional negation presents many obstacles to a new language learner, ranging from abstractness (one cannot simply point to it) to salience (it requires attending to what is not the case), what cues allow learners to master words that express negation? We report three experiments using a variant of the Human Simulation Paradigm (HSP, [4]) that investigated contributions of non-linguistic (visual information) and linguistic evidence (syntactic and/or lexical) in inferring the presence of a negator in a message. We ask whether adults can infer that negation would be used to describe unfulfilled goals, and whether linguistic cues can help.

Online comprehension of passive sentences by children with developmental language disorder and typically-developing age-matched peers

Kathleen Oppenheimer; Giovanna Morini; Kristina Strother-Garcia; Yi Ting Huang; Amanda Owen Van Horne

Non-canonical sentences are notoriously difficult for children with Developmental Language Disorder (DLD). Examination of online comprehension of the active-passive alternation can inform our understanding of how these children process structural and lexical information. Twenty-two children with DLD and 18 TD age-matched peers (ages 4-7) participated in an online comprehension task assessing active and passive syntax using a two-alternative forced choice eye-tracking paradigm followed by a prompt to point to the correct choice. Pointing responses showed the expected interaction between structure type and group, such that children with DLD were much less accurate than peers on the passive items. Eye-tracking results indicated that children with DLD do not differentiate active and passive sentences, suggesting underlying difficulties with basic word order that go beyond the difficulties previously reported. Results are discussed in the context of theories of DLD and the role of input on lexical and structural sensitivity.

Parser immaturity and the processing of ambiguous relative clauses in Brazilian Portuguese

Iolanda Góes; Elaine Grolla

In Brazilian Portuguese, children avoid producing object relatives, producing absolutives (AbS) instead (a bola que chutou - the ball that kicked). This structure involves verb-valence alternation: there is no agent and the pre-verbal object agrees with the verb. Given children's high production of AbS, we conducted a truth-value judgment task with BrP-acquiring children in order to investigate children's preferences in interpreting relative clauses whose [+animated] relativized heads are ambiguous between theme (associated with the AbS) and agent interpretation. Given that: the subject position is more easily accessed by the parser; a [+animated] NP is usually associated with the agent theta-role, we predicted participants would favor the agent interpretation. However, children, unlike adults, preferred the theme interpretation ($p < 0,01$). The high frequency of the theme interpretation may indicate difficulties of the immature parser, which might not be able to rapidly integrate different sources of information to guide parsing choices.

Phonologically cued lexical anticipation in L2 English: A visual world eye-tracking study
Katrina Connell; Maria Gabriela Puscama; Joana Pinzon-Coimbra; Julia Rembalsky; Gloria Xu; Jorge Valdes Kroff; María Teresa Bajo; Giuli Dussias

Eye-tracking was used to investigate the extent to which second language (L2) speakers of English employ the phonological alternation of the English indefinite article a/an as a cue to anticipate upcoming nouns. Thirty-one L1-Spanish L2-English listeners' eye movements were recorded as they heard a target word in a neutral context in the presence of target and competitor pictures that formed either the same-article condition (e.g., a compass – a tomato) or a different-article condition (e.g., a compass – an umbrella). Linear mixed models were conducted on the differential proportion of fixations to target from the article onset to target noun onset. L2 learners showed significantly higher proportion of fixations to target in the different- compared to same-article condition, but only for 'an' targets. This effect was modulated by proficiency. These results suggest that phonologically triggered asymmetries can result in differential processing advantages for L2 leaners, which are modulated by proficiency.

Quantifier-spreading under negation
Fulang Chen; Leo Rosenstein; Martin Hackl

Children are known to judge sentences like "every girl is riding a bike" to be false in an extra-object scenario. This phenomenon is known as quantifier-spreading. We investigated whether quantifier-spreading occurs under negation; namely, whether children judge sentences like "not every girl is riding a bike" to be true in an extra-object scenario. To our knowledge, this has not been systematically studied. Data from our experiment conducted with 31 3-to-5-year-old children show that quantifier-spreading occurs under negation ($U=6076$, $z=-2.85$, $p<.05$, two-tailed). This is unexpected for certain theories of quantifier-spreading, eg. an implicature-based account by Denić and Chemla (2020), which suspect that mechanisms of establishing quantifier domains are at the heart of this phenomenon. The insensitivity of quantifier-spreading to the presence of negation, we argue, indicates that the source for the non-adult-like construal of the relevant quantifier domain is presuppositional.

Reasons for the reverse production effect: Task difficulty or specific to language?
Belen Lopez; Daniela Gallardo; Tania Zamuner

While the Production Effect has been found in children and adults consistently, recent studies have tested this effect using newly trained words, with children showing an unexpected pattern - better recognition of new words that were only heard, labelled as the Reverse Production Effect (RPE). The current study further investigates the nature of the RPE in 5-6-year-old children. Specifically, whether the disruption in learning is a consequence of task difficulty, (i.e performing an action during learning) or if it is triggered by production (i.e specific to speech-related tasks). Preliminary data indicate lower or equal performance for all action-related tasks (speech and non-speech tasks) when compared to Heard-only. The RPE appears to hold for all action-related tasks, not specific to speech. While results do not discount the effect of linguistic factors, they do indicate that one source of the RPE stems from task-difficulty.

The role of semantics in the acquisition of noun class morphology: Some evidence from Eegimaa
Serge Sagna; Virve-Anneli Vihman; Marilyn Vihman; Dunstan Brown

Children's learning of the semantic generalisations associated with noun classification systems remains relatively little explored. We present evidence from a naturalistic study of the acquisition of Noun Class Prefixes (NCPs) in Eegimaa, a language of the Niger-Congo Atlantic branch. We present a corpus analysis of speech samples from seven children, aged 2;0, 2;6 and 3;0 (4, 3 and 3 samples, respectively), based on 6 hours of recordings from a mixed longitudinal and cross-sectional study of 15 children. The Eegimaa children's NCP use suggests emergent knowledge of noun classes from age 2;0. Productive usage of NCPs with nominal stems suggests that children may have systematic knowledge of the noun class system at an early age – but these noun forms may also be lexically learned.
Semantic overgeneralization, seen in errors and generic noun usage, provides positive evidence of system-building from age 2;6. Additionally, lexical-semantic cues clearly support children's usage of NCPs.

The role of within- and between-talker variability in early word learning
Federica Bulgarelli; Elika Bergelson

Infants must learn when acoustic changes signal a change in a learned object-word link. Prior to a year of age, infants struggle with this, not recognizing words produced by new talkers but accepting mispronunciations of familiar words. Talker-variability has been shown to help older infants learn highly-similar novel words. Using a single-word Switch task, we ask whether talker-variability during word-learning similarly helps 8-month-olds form more adult-like representations of words. Exp1 tests infants' recognition of a newly-learned word produced by a new talker. Without talker-variability, participants failed to recognize the word when produced by a new talker. With within- or between- talker variability, participants recognized the word produced by a new talker, but also accepted a new word as a token of the learned word. Neither pattern is adult-like. Exp2 (in progress) tests infants' mispronunciation sensitivity. Together, these experiments inform how within- and between- talker variability contribute to infants' word learning.

SES differences in verb usage mediate form-function relations in parental speech
Yi Ting Huang; Meredith Rowe; Kathleen Oppenheimer

The semantic and syntactic properties of parental input vary with SES background and predict child language development. Communicative goals, such as parental use of decontextualized language, also differ by SES. To investigate the relationship between SES, language form, and language function, we conducted a corpus analysis of parental speech focusing on verb use. On average, parents with higher SES used most verb types more frequently than parents with lower SES and the effect of SES on verb frequency differed by verb. We used MLU to measure syntactic complexity and verb concreteness as a proxy for decontextualized language. On average, parents with higher SES produced longer utterances and used more abstract verbs; further, we found that verb concreteness mediated the relationship between SES and MLU. Verbs provide a useful tool for analyzing SES differences in language development, as they track systematic relationships in communication across the word, utterance, and discourse levels.

Social cognition and pragmatic inference in word learning
Zhenghan Qi; Dionysia Saratsli; Anna Papafragou

Both children and adults can use pragmatic inference and social cognition to learn word meanings. However, the relationship between these factors and word learning has not been systematically studied beyond in-the-moment mappings. Here we compared adults' attainment and retention of novel word meanings that were either ostensively taught or pragmatically inferred, and further related results to social-cognitive measures. In two experiments, participants heard 8 taught words, whose meaning could be identified from a sentence in combination with the scene ("Look! I like this bink! It is on the dinosaur!"), and 8 inferred words, whose meaning had to be computed through pragmatics ("Look! I like this dinosaur! It is holding a mel!"). We found word meanings learned through pragmatic (informativeness) reasoning are remembered better than those acquired through simpler word-to-world mappings. Furthermore, social cognition has a specific role in supporting the retention of word meanings learned through pragmatic computation.

Some alternatives are worth considering: Children who compute scalar implicatures know that "some" means not all, but "dax" doesn't
Kelsie Lopez; Roman Feiman

Children often struggle with scalar implicatures, failing to infer that asserted "some" tends to mean not all. One explanation is that children don't consider that a speaker who said "some" could instead say "all." In two experiments, we explored how children know which alternatives to consider. Children were asked to give varying quantities of toys: ["a," "all," "some," "dax"] in Experiment 1 and ["two," "three," "some," "dax"] in Experiment 2, testing whether highlighting different alternative requests would change what children give when asked for "some". If children know which alternatives to consider, they should infer that "some" means not-all (and not not-two or not-three), but dax doesn't. Children avoided giving 5/5 toys when asked to give "some," but not when asked for "dax," starting at 4½ years old in both experiments. This suggests that as soon as children start computing implicatures, children constrain which alternatives they consider with prior knowledge.

A strong language foundation, but not being deaf, supports learning ASL as a second language
Kaj Kraus; Deanna Gagne

This study investigated the common claim that deaf children should focus on learning spoken English early in life and that the acquisition of ASL can be achieved later, if need be. This suggestion may also assume that deaf children have a propensity to learn a visual language that is unique to their population. Eighteen second-language learners of ASL were grouped based on visual propensity (deaf vs. hearing) and the strength of English as a first language (strong vs. weak reading scores), then tested for their ASL comprehension. We find that it is the strength of the first language that likely supports second language learning with no particular benefit for visual propensities, suggesting that learning ASL as a second language may be harder for those deaf children who did not succeed with English earlier.

Testing the role of the L1 in L2 connected speech production
Michael Fang; Charles Chang

Given previous evidence of crosslinguistic influence (CLI) of the L1 in L2 speech, this study tested the explanatory power of the L1 in accounting for L2 connected speech. Comparing late L2 learners of English from an L1 Mandarin background with L1 English speakers, we examined production of three types of word boundaries in spontaneous connected English speech (nasal-to-vowel, lateral-to-vowel, vowel-to-vowel), perceptually coding each boundary for connectedness and following prominence. Results showed no clear CLI from Mandarin in learners' connected speech, suggesting that, at least at more advanced stages of L2 development, the L1 plays little to no role in L2 connected speech: disparities between L1 and L2 speakers that would follow from CLI do not occur, while disparities that do occur cannot be explained by CLI. These findings thus highlight the limitations of an L1-based approach and, consequently, the need to engage other explanations for L2 connected speech production.

Uniting monolingual and bilingual learning: Typical vs. atypical words shape toddlers' real-time sentence processing

Christine Potter; Casey Lew-Williams

A prominent challenge faced by bilinguals is the presence of mixed-language sentences (Mira el horse!). Bilingual toddlers recognize familiar words in their more frequently-heard dominant language in both typical (single-language) and atypical (mixed-language) sentence contexts, but struggle to comprehend their non-dominant language following a language switch. We hypothesized this difficulty does not reflect a bilingualism-specific phenomenon but instead can be explained by domain-general principles: sensitivity to typical statistics of input and the frequency with which words are encountered. We investigated the continuity of learning across monolingual and bilingual environments by testing monolingual toddlers' comprehension of frequent vs. infrequent target words (e.g., horse vs. pony) in typical vs. atypical sentence frames (e.g., Find the… vs. Examine the…) to approximate bilingual experience. Like bilinguals, monolingual toddlers showed significantly greater difficulty recognizing low-frequency words across diverse sentence contexts. Therefore, we suggest the same basic principles contribute to early language learning in different environments.

Poster Session 2

November 6, 2020
7:00 PM – 8:30 PM

Asymmetry between person and number features in L2 subject–verb agreement
Shigenori Wakabayashi; Takayuki Kimura; John Matthews; Takayuki Akimoto; Tomohiro Hokari; Tae Yamazaki; Koichi Otaki

This study investigates L2 learner sensitivity to the omission and overuse of inflectional morphemes by focusing on English 3rd person singular -s (3ps) in sentences with pronominal subjects. Assuming that the [person] feature is intrinsic to every noun phrase but the [number] feature is optional/additive universally (cf. Chomsky, 1995: 231), we expect Taiwanese/Chinese learners of English to show sensitivity to an agreement violation when the subject is either 1st or 2nd person, but not when it is 3rd person. Twenty-eight English native speakers and twenty Taiwanese L2 learners of English participated in a self-paced reading task administered by SuperLab. A Linear Mixed Effect Model revealed significant delays in L2 reading time with 1st and 2nd person (but not 3rd person) subjects, consistent with our theoretically motivated prediction.

Bilingual children process garden-path sentences in the same way as monolingual children
George Pontikas; Ian Cunnings; Theo Marinis

Online processing in bilingual children is an understudied field of research but evidence suggests slower yet qualitatively similar processing patterns. However, the processing of more complex structures remains largely unexplored. The resent study expands research by Trueswell et al. (1999) into bilingual children to examine differences in ambiguous sentence (i.e., garden-oath) processing using a visual-world paradigm study.

Both groups experienced garden-pathing but the misinterpretation was slower in bilinguals. Both groups had difficulty recovering from misinterpretation, as indicated by lower comprehension accuracy to garden-path sentences, but this was not significantly more pronounced in the bilingual children. Referential content did not aid disambiguation either in real-time or comprehension accuracy.

Taken together, the results support previous works reporting similar processing patterns in monolingual and bilingual children with the latter being slower. This suggests that bilingual children process not only simple but also complex syntactic structures in a similar way to monolingual children."

Is categorical perception for phonemes adult-like by 6 years of age? Phoneme identity and reaction time in the Flower Crown Task for multilingual children in Singapore
Han Ke; Lei Pan; Beth Ann O'Brien; Suzy Styles

Phonological perception develops with linguistic experience.In adults, categorical perception occurs when speech sounds on a continuum have a steep transition from one category to the other (e.g., /b/ to /p/), resulting in a characteristic s-shaped psychometric function. Another hallmark of categorical perception is slower reaction times at the category boundary. This gradual sharpening of category boundaries continues into adolescence. However, there is limited knowledge about how children growing up in the presence of two-or-more linguistic systems resolve their categories into a mature system. Most Singaporeans grow up with more than one language in their early home environment. We evaluated the maturity of multilingual Singaporean children's categorical perception for English, as measured by phoneme identity and reaction time (RT) for stop consonants at age 6.Results show the immaturity of categorical perception skills for English /b/ and /p/in bilingual children growing up in Singapore at 5.5 to 6 years of age.

Category priming promotes infants' success in naming things unseen
Elena Luchkina; Sandra Waxman

A fundamental feature of human language is that it permits us to call to mind objects, events, and ideas that we cannot witness directly. This communicative power rests upon the referential status of words—an appreciation that words are linked to mental representations, ones that we can retrieve and modify. Although attaining an appreciation of this referential status represents a pivotal developmental milestone, its origins remain poorly understood. To address this gap, we asked whether 15-month-olds can establish a representation for the meaning of a novel word based on language alone and later draw on that representation to identify a referent of that novel word. Our analyses suggest that 15-month-olds are capable of learning novel word meanings from language input alone and provides hints that infants might indeed be using category priming to infer such meanings. Implications for the development of linguistic reference and its underlying mechanisms will be discussed.

Changes in parental input patterns of wh-questions
Yuriko Oshima-Takane; Polina Titova

Sixty French-speaking parents and their children from three different age groups (16-,20-, and 30-month-olds) were shown 13 silent movie clips. Parents were asked to describe dynamic events in the movie clips to their child in order to investigate their use of wh-questions and children's verbal responses. Although children rarely provided verbal responses to wh-questions at 16-months, the number of verbal responses increased significantly afterwards. When children did not give verbal responses to wh-questions, French-speaking parents provided prompts after wh-questions. However, the rates of prompts after wh-questions were significantly higher in 20- and 30-month-olds' parents than 16-month-olds'. Furthermore, the parents began using noun-eliciting wh-questions more often than verb-eliciting wh-questions only after children became responsive to wh-questions, in contrast to previous findings on English-speaking parents (Goldfield, 1993, 2000). These results are discussed in relation to Rowe et al.'s (2016) proposed mechanisms explaining why wh-questions are beneficial for vocabulary development.

Characterizing developmental trajectories in L1 production of Thai tones
Francesco Burroni; Praneerat Panpraneet; Chutamanee Onsuwan

In this paper, we present the results of a production study aimed at characterizing the acoustic differences between children and adults' lexical tones in Thai. We first present statistical differences for each tone between children and adults in a variety of acoustic dimensions. Subsequently, we move to the factors that may be responsible for such differences. We suggest that some differences follow from anatomical considerations, while others are best explained in terms of different motor control demands. We conclude by presenting a dynamical model cast in the framework of Articulatory Phonology and Task Dynamics that can simulate the observed patterns.

Children's asymmetrical responses and the spreading phenomenon of focus particles in Japanese right dislocation
Riho Mochizuki; Hiroyuki Shimada; Kyoko Yamakoshi

This study examines children's spreading phenomenon with focus expressions dake/sika in Japanese Right Dislocation(JRD). English-speaking children are reported to associate presubject only differently from adults and similar spreading is also observed in child Japanese. Japanese is an SOV language, but its word order changes in JRD. In our experiment, four patterns were examined: A.[Focused S] V, O / B. [Focused O] V, S / C. O V, [Focused S] / D. S V, [Focused O]. We investigate whether children's spreading is based on linear order or syntactic hierarchy. The method was the TVJT and the subjects were 16 children (5;2-6;10, mean:6;2). The results show children frequently gave nonadult responses in A and C, but not in B and D. These findings suggest that children reconstruct moved subjects and objects to canonical positions in JRD and their spreading is due to asymmetrical c-command relation between subjects and objects.

'Clap your hands' or 'take your hands'?: One-year-olds distinguish between frequent and infrequent multiword phrases
Barbora Skarabela; Mits Ota; Rosie O'Connor; Inbal Arnon

There is growing evidence that multiword sequences play an important role in language learning and use. However, it is not clear when this type of sensitivity emerges in young children. The present study examines one-year-olds' ability to distinguish between three-word sequences (trigrams) that have similar lexical frequency but differ in their multiword frequency in infant-directed speech (e.g., high frequency: clap your hands vs. low frequency: take your hands), using a central fixation paradigm. Infants' fixation times were significantly longer in the frequent trigram trials than the infrequent trigram trials. This study provides the first evidence that children as young as 11 months of age are sensitive to the frequency of multiword combinations in infant-directed speech, suggesting they attend to and extract such units. This finding is consistent with the view that larger sequences are an integral part of the language acquisition process.

Complement control in early child Mandarin: Evidence from a preferential looking experiment
Jingying Xu; Xiaolu Yang; Rushen Shi

The present study investigates the representation of complement control in toddlers at the early stage of syntactic acquisition. We tested 32 Mandarin-speaking 25-month-olds in an IPLP comprehension experiment. Speech stimuli included four structure types in two minimal pairs: subject control vs. covert object control (when the object is null), and overt object control vs. the *gei* 'for' structure (with a surface structure identical to overt object control). The results revealed a significant difference in children's proportion of looking to matrix subject for subject control versus covert object control and also for the *gei* 'for' structure versus overt object control. It was also found that proportion of looking to target was significantly above chance level for subject control and the *gei* 'for' structure, though at chance for covert object control and overt object control. These findings demonstrate children's early knowledge of control and provide evidence for the continuity hypothesis of control.

Determining risk and protective factors for dual language development in recently arrived refugee children from Syria
Adriana Soto-Corominas; Johanne Paradis

This study investigated the development in the dual language profiles of Syrian refugee children living in Canada using a sentence repetition task in both English and (Syrian) Arabic at two time points; after two years of residency in Canada (Time 1; T1) and one year later (T2). Clustering of participants according to their performance at T1 suggested three dual language profiles: (1) high-L1/high-L2, (2) high-L1/low-L2, and (3) low-L1/low-L2. At T2, the clusters remained separate despite an overall improvement in English, suggesting stability of the profiles over time. Regression was employed to investigate which factors predicted participant clustering at T1. A variety of protective (maternal education and input) factors and one risk factor (time spent in refugee camp) influenced these profiles. An argument is made for regarding language development in refugee children differently from that of other child bilingual populations.

Effects of impoverished early language on simple transitive sentence comprehension: The roles of animacy and word order
Qi Cheng; Rachel Mayberry

Deaf individuals sometimes acquire American Sign Language (ASL) as their first language (L1) after late childhood, resulting in poor language outcomes. Here we examine the strategies late L1 signers use to comprehend simple transitive sentences in ASL, to see if early syntactic development is affected by impoverished early language. We adopted a sentence-picture matching experiment, with a two-by-two design that crossed the two nouns in SVO ASL sentences (subject, object) with noun animacy (animate, inanimate), yielding four conditions. The results suggest that native signers consistently rely on word order, while late L1 signers mostly rely on word order when there are no other competing cues, but are less likely to rely on word order when animacy conflicts with the syntactic role. When early language is impoverished, even basic linguistic cues appear to be less accessible to the learner, despite years of language use, verifying a sensitive period for language learning.

Hearsay is generally trusted more than inference: Reliance on different information sources by 5-6-year-olds and adults
Jisoo Kim; Sujin Kim; Youngon Choi

The present study explored how Korean-speaking adults and 5-6-year-olds reason about information certainty based on the sources marked by evidential morphemes, when additional information about the inference and the source of hearsay was present or absent. Adults displayed a surprising pattern of reasoning, trusting hearsay more than inference in general, unless the source was known to have not had the access to the information. This was different from that predicted by the evidential hierarchy. When direct observation, inference, and hearsay were presented simultaneously, 5-6-year-olds could correctly choose direct observation as the most reliable source but they also tended to trust hearsay more than inference, like adults. These findings suggest that adults and children generally regard hearsay as a more trustworthy source than inference, when the source is unknown, different from the prediction made by the evidential hierarchy. And this might have led researchers to underestimate children's actual evidential reasoning competence.

How chatty are daddies? Parental differences in the language environments of infants
Naomi Tachikawa Shapiro; Daniel Hippe; Naja Ferjan Ramirez

Dads play an invaluable role in the cognitive and linguistic development of their children. Yet, recent cross-sectional research has suggested that infants hear much less linguistic input from their dads than from their moms. In the present longitudinal study, we focus on the total number of adult words heard by infants and on parentese, an acoustically exaggerated parental speech style that has been shown to enhance children's language outcomes. Using Language ENvironment Analysis (LENA) technology, we analyzed the recordings of 23 infants from English-speaking, heterosexual parents, at ages 6, 10, 14, 18 and 24 months. Both parents were home for each recording. We found that children heard significantly more adult words and parentese from moms than from dads. This gap persists throughout infancy, even as dads increase their usage of parentese at a faster rate than moms.

The impact of speech complexity on preschooler attention and learning
Ruthe Foushee; Mahesh Srinivasan; Fei Xu

How does language complexity impact how much preschoolers attend to and learn from the speech around them? Previous studies show that children manage their rate of information absorption by selectively attending to stimuli at an intermediate level of complexity. Here, preschoolers (4-6 years) heard a storybook being narrated while watching a video simultaneously displaying the Illustration for each page and a distracting animation. The complexity of the storybook narration was manipulated, resulting in two versions. The Simple version consisted of age-appropriate words, whereas the Complex version used and introduced advanced vocabulary words. After the story, the participants answered listening comprehension and vocabulary questions using a series of picture grids. Participants in the Simple condition exhibited greater visual attention to the story illustration and longer listening times to the narration itself. These indices of their attention to the story were in turn significantly related to children's overall learning at test.

Informativity of the word learners' environment: New insights from the human simulation paradigm
Sara Johnson; Tiffany Schalla; Umay Suanda

Theories of early word learning differ in their interpretations of the input's role on learning. While some theories stress how the rich social contexts of the input shapes learning, others stress that those contexts are insufficient to account for learning. In the current study, we analyze participants' error patterns in a Human Simulation Paradigm (HSP) task to shed light on the informativity of the learning environment. Our analyses suggest that although the learning environment may not be sufficient to account for precise word meaning, it likely provides learners with partial word meaning and/or a set of plausible word meanings that includes the precise word. These findings reveal that the early learning environment may be more informative than what is suggested by HSP accuracy patterns alone. Further manipulations of the HSP that probe learning in different ways may continue to shed light on the input's impact on early word learning.

Language development in Southern varieties of American English
Christiana Christodoulou; Ianthi Maria Tsimpli

African American English (AAE) and to a smaller degree Southern English (SE), are socially stigmatized linguistic varieties, despite extensive research showing that what is often perceived as lack of grammatical knowledge, such as reduced inflection marking, is in fact a characteristic of the dialect. This study investigates language acquisition in 211 children aged 2-13 speaking AAE and SE. Using the Diagnostic Evaluation of Language Variation Screening Test we determined that while the overwhelming majority of SE-speaking children's language was evaluated as Mainstream American English (MAE), AAE-speaking children's language fell almost equally under MAE and strong variation from MAE. While most SE-speaking children exhibited low risk for a language disorder, the combined percentage of medium to high risk (mhLD) and highest risk for a language disorder (HLD) amounted to 37.6%. Means for language disorder for AAE-speaking children follow a similar trend, with a combined percentage of 60.5% under mhLD and HLD.

Learning to anticipate with unconventional prosodic mappings: The L2 advantage
Chie Nakamura; Jesse Harris; Sun-Ah Jun

In two visual-world eye-tracking experiments, we tested how L2ers as well as native speakers, respond to proper/improper uses of contrastive L+H* accents during a visual search task. The results showed that L2ers use prosodic information to anticipate upcoming speech, plausibly using a wider range of phonetic and visual information than native speakers when prosody was non-conventional. The finding is challenging under a strong construal of existing accounts in which L2ers have a limited capacity for anticipatory processing

Learning language in the digital age: Effects of interruptions on word learning and word recognition
Annabel Rui Ying Tan; Shruthilaya Ramachandran; Yi Xuan Ho; Leher Singh

Infants must restore underlying words being spoken despite everyday interruptions like doorbells and traffic that degrade incoming speech. This study investigated the effects of different types of interruptions on word learning via the Switch paradigm and word recognition via the preferential looking paradigm in monolingual infants. We compared 2-year-old infants' abilities in restoring words when masked by voice-sourced (coughs) and digital (text message alerts) noise. The combination of a dishabituation response to text alert trials versus clear trials in the Switch paradigm and no effect of labelling for text alert trials in preferential looking suggests that both word learning and word recognition are compromised by digital noise. In contrast, infants did not dishabituate to cough trials (Switch task) and preferentially fixated labelled targets for cough trials (preferential looking), providing evidence for successful restoration amidst voice-sourced noise. Our findings suggest that digital interruptions may be particularly disruptive to early lexical processing.

Structures of function morphemes guide Mandarin-learning 19-month-olds in backward syntactic categorization
Yuanfan Ying; Xiaolu Yang; Rushen Shi

Previous studies show that infants store function morphemes for categorizing adjacent words. We inquire whether infants infer syntactic categories from syntactic relations or just bigram probabilities. Using a visual fixation procedure, we examined whether Mandarin-learning infants categorize word X using a following function morpheme f in a prosody-neutral 3-word sequence X-f-Y (X and Y were unfamiliar words). Three groups of 19-month-olds were randomly familiarized with X-*ye*-Y ('even X/n Y/v), X-*le*-Y ('have X/v-ed Y/n'), or X-*bu*-Y ('X/n doesn't Y/v'). While X-f bigram probability only promises categorization with *ye*, they succeeded with *ye* and *le* (by discriminating new grammatical and ungrammatical contexts of X), but they failed with *bu*. This implies that for X-f-Y, infants categorize X when it is structurally dependent on the following function morpheme f ([Xf][...]), not otherwise ([X][f...]). Our findings also provide initial evidence for infants' ability to capture free and bound function morphemes for backward syntactic categorization.

Minimal gains for minimal pairs in preschoolers
Sarah Creel; Conor Frye

A critical test of language knowledge is the ability to discern the finest possible distinctions that convey different meanings in the language, such as the words bih and dih. The current study sought to distinguish an early mastery account of minimal pair word learning from a protracted perceptual learning hypothesis which suggests that sound learning continues for years. To distinguish these perspectives, we taught previously-unfamiliar minimal pairs to 3-5-year-olds. Early mastery predicts excellent learning, while the protracted perceptual learning hypothesis suggests that preschoolers may still find minimal-pair word learning challenging. Three experiments using 32 different minimal pairs demonstrated that young children still struggle to learn that minimally-different words refer to different things. This is consistent with protracted perceptual learning. One salient practical implication is that preschoolers will require extensive learning opportunities to acquire letter-to-letter-name mappings—a set containing many minimal pairs, as well as a strong predictor of early literacy.

Phonetic cue reweighting is error-driven and dimension-based
Vsevolod Kapatsinski; Zara Harmon; Kaori Idemaru

We provide evidence for error-driven dimension-based learning in phonetic cue weighting. Learners are argued to reallocate attention across dimensions like VOT, F0 or speaker identity based on prediction error. Importantly, learners are argued to reweigh dimensions rather than individual VOT or F0 values (cues). Adults exposed to predictive variation along a secondary perceptual dimension cueing a phonological contrast (F0 for voicing) paired with a single value of the primary dimension (VOT) downweight the primary dimension more when that dimension's experienced value had been predictive in the learners' prior linguistic experience. Downweighting affects the whole dimension and not just the experienced values. For example, training on VOT=45 ms paired with /b/ or /p/ depending on F0 increases responding with /b/ across the values of VOT. In line with error-driven learning, category outcomes that occur unexpectedly are selected more than those that occur expectedly, even when relative probabilities are controlled.

Predicting scalar implicature interpretations from lexical knowledge
Amy Pratt; Ana Arrieta-Zamudio; John Grinstead

Scalar implicatures associated with the Quantity Scale (Horn 1972, Grice 1975) are derived from a set of quantifiers that are associated in the lexicon. The strength of the associations among these Quantity Scale quantifiers appears to increase in parallel with the overall size of children's lexicons. If the ability to generate implicatures is indeed a reflection of the strength of association among these quantifiers, and their consequent relative informativeness, then increasing general lexical knowledge should predict children's "some, but not all" implicature interpretations. We show that children's quantity implicatures can be predicted from each of 4 distinct general lexical measures, including Number of Different Words. We also show that children can be identified as implicature generators with 91% sensitivity and 100% specificity with a linear discriminant function analysis.

Processing factors and syntactic choice in Mandarin child-caregiver speech
Jidong Chen; Gan Fu; Shu Yang; Bhuvana Narasimhan

We investigate the influence of two processing factors, syllable weight and priming, on the syntactic choices in child Mandarin between the SVO (e.g., ni chiwan fan 'you eat-finish food') and the SOV 'ba' constructions (e.g., ni ba fan chiwan 'you BA food eat-finish' 'You eat up the food'). We examined 1085 utterances in a longitudinal naturalistic Mandarin child (1;07 to 3;04) corpus (Tong corpus, CHILDES), which contained the 25 most frequent verbs used in the 'ba' construction (n=222) and the SVO constructions (n=863). Our study demonstrates that processing factors influencing adult Mandarin speakers' structural choices play a similar role in both child and caregiver speech, extending experimental research demonstrating priming effects in children's use of 'ba' constructions to spontaneous production. But the non-linear effects of

noun phrase weight suggest that ease of processing considerations may not be the only factor driving syntactic choice.

Proficiency effects in the acceptance of resumptive pronouns in second language English
Fred Zenker

This study provides evidence that second language (L2) learners of English initially accept sentences with subject resumptive pronouns (RPs) in long-distance relative clause dependencies and gradually start rejecting them as proficiency increases. Adult L2 learners of English from various first language (L1) backgrounds and adult native English speakers participated in an acceptability judgment task with a 2x2 design crossing "dependency length" (short; long) and "dependency type" (gap; RP). There was also a C-test to measure English proficiency. Higher-proficiency learners and native speakers assigned high ratings to gaps and low ratings to RPs regardless of dependency length, but lower-proficiency learners had high ratings in the [long, RP] condition. A simple linear regression analysis found that higher target-language proficiency scores were associated with lower ratings in the [long, RP] condition, a trend that did not appear to be dependent on L1 background. These results support a processing-based explanation of L2 English resumption.

Do preschoolers use new words with speakers who don't know those words?
Antonia Langenhoff; Mahesh Srinivasan

We explore children's ability to use their knowledge of whether a word is mutually known when talking to others. Adults and 5-year-olds were tasked with requesting objects from a puppet. We varied whether the puppet was absent or present while participants learned the object's label. As predicted based on a Gricean cooperative account, adults were more likely to use a description of the object ("the blue one") as opposed to only the label ("the bem") when the puppet had been absent than when the puppet had learned the label with them. Children, in contrast, used almost exclusively labels to request the objects even when the puppet had been absent, although they were able to track whether the puppet knew the label or not. Thus, children appear to have difficulties resisting using a newly-learned label with an interlocutor. Potential explanations for these difficulties and implications for future research will be discussed.

Relation of infant and mother pointing to infants' word comprehension and latency to find referents
Sura Ertaş; Sümeyye Koşkulu; Ebru Ger; Aylin Küntay

The present study examined whether parents' and infants' use of whole-hand and index-finger pointing at 14 months were associated with infants' word comprehension and processing speed at 18 months. To measure pointing frequency, we used the decorated room paradigm, where the mother-infant dyads spontaneously interacted with one another while walking for five minutes in a room with 18 objects hung on the four walls. We extracted infants' and mothers' whole-hand and index-finger points and calculated the frequency of all points as well as of each type of pointing for both infants and mothers. At 18 months, we used a version of the Looking While

Listening task on an eye-tracker to measure word comprehension and latency to find the matching referent for a word. We found that the index-finger pointing frequency of infants at 14 months predicted at 18 months word comprehension and latency to match.

A sea of words: Verbal clutter and statistical word-referent learning
Miranda Long; Sumarga H. Suanda

A wealth of research reveals the power of cross-situational statistical learning in discovering word-referent mappings (see Smith & Yu, 2008; Yu & Smith, 2007). Many of these studies, however, employ artificial learning paradigms that underestimate the verbal clutter to which infants are exposed. Here, we illustrate that compared to previous cross-situational learning paradigms, in the infants' input: (1) only a small subset of utterances contain the object's name and (2) an object's name represents only a small proportion of the total words infants encounter when that object is talked about. We then test the tolerance and robustness of statistical word-referent learning by constructing a learning task that better resembles the "statistics" infants face. Results revealed that despite the seemingly challenging conditions, statistical learning – in adults at least – is sufficiently robust and tolerant to also overcome the verbal clutter characteristic of infants' learning environments.

Sensitivity to non-native phonetic contrasts in word learning and discrimination in the second year of life: Evidence from monolingual and bilingual infants
Leher Singh; Annabel Rui Ying Tan

Infants demonstrate a decline in discrimination of non-native phonetic contrasts by 12 months. The present study investigated infants' sensitivity to non-native contrasts in a non-referential discrimination and referential word learning task (total N=168). Monolingual and bilingual infants' discrimination of the Hindi dental/retroflex (/ta/-/ʈa/) contrast was investigated at 14 months (Experiment 1). Neither group discriminated the contrast. Using the Switch paradigm to measure word learning with the same conrast, monolingual and bilingual infants were tested at 14- and 18-months (Experiment 2a) Subsequently, an older group of bilingual infants was tested at 24 months (Experiment 2b). Results demonstrated an overall sensitivity to the Hindi contrast at 14 and 18 months, but not at 24 months (bilingual infants). Findings suggest that both monolingual and bilingual infants retain sensitivity to non-native phonetic contrast when learning words in the second year of life, even though discrimination of these contrasts in non-referential tasks has narrowed.

The social dynamics of joint attention in American Sign Language interactions between deaf children and their parents
Amy Lieberman; Allison Fitch; Eric Setzer

Deaf children acquiring American Sign Language (ASL) perceive both linguistic and non-linguistic information through the visual mode. In the current study, we investigated the social dynamics of joint attention in these visually-complex interactions. We analyzed attentional cues used in naturalistic ASL-based interactions between young deaf children and their parents, focusing on concrete nouns. We found that parents used a follow-in approach by labelling an object to which the child had previously been attending roughly two-thirds of the time, and this was positively correlated with child age. Parental attention-getting cues were relatively rare, suggesting that deaf children are adept at managing their own visual attention through spontaneous gaze shifts to the parent. Our results suggest that joint attention in ASL-based interactions is achieved when parents label objects to which the child had previously been attending, and when deaf children seek linguistic input through gaze shifts to their interlocutors.

Speed and accuracy correlate positively in Japanese children's speech production, regardless of potential tradeoffs
Kyoji Iwamoto; Ayako Kondo; Hideaki Kikuchi; Reiko Mazuka

Speed-accuracy tradeoffs occur widely in adult cognitive and linguistic tasks, including speech production. But it is not known whether similar tradeoffs occur with children whose speech production is still developing. Therefore, we investigated how the tradeoffs occur in the process of speech development.
Recordings were used from an elicited production task with 108 Japanese-speaking participants in 6 age groups (5-, 7-, 9-, 11-, and 13-year-olds and adults). Participants produced 3 types of novel words; i) CV.CV, ii) CVV.CV, iii) CV.CV.CV.
The results showed children's speech rate development and the occurrence of inaccuracies are clearly not independent, but linearly correlated so that the relative duration of children's word production and inaccuracies decreases proportionally with age. This is fundamentally different from the tradeoff between speed and accuracy. We assume it is because both speed and accuracy are constrained by motor control development and are not malleable within individual children.

SVO order processing in diverse groups of Mandarin-exposed preschool children with autism spectrum disorder
Jingting Mo; Yi (Esther) SU; Letitia Naigles

Subject-Verb-Object (SVO) is the canonical word order acquired by Mandarin-exposed typically developing (TD) children and children with autism spectrum disorder (ASD), yet children with ASD appeared less efficient processors than TD children with higher expressive language levels. Using Intermodal Preferential Looking, we compared SVO processing (e.g., The bird is pushing the horse) in ASD high-verbal and TD groups matched on expressive language, and included an under-represented minimally verbal group with ASD. Diverse groups of children with ASD acquired SVO order before age four. However, they demonstrated surprising differences in processing efficiency: while the minimal-verbal children showed early comprehension during the 1st half of test trials, high-verbal children (and their TD counterparts) displayed time-consuming yet persistent understanding throughout listening to the object NP. These might suggest an initial sensitivity to one-to-one structural mapping among minimally verbal children with ASD and a typical adherence to Mandarin VO setting for their high-verbal peers.

The use of pronoun interpretation biases in Spanish Heritage Speakers: The role of language exposure
Carla Contemori

Heritage speakers (HS) of a null subject language (e.g., Spanish) whose second language is a non-null subject language (e.g., English) can show some optionality in the interpretation of subject pronouns in the heritage language. However, it is still unclear which underlying mechanisms explain the differences between HSs and monolinguals (incomplete acquisition vs. lack of exposure). We address this debate by testing a large group of HSs and by analyzing individual factors that may determine the differences observed in pronoun interpretation (i.e., language proficiency, reading exposure, language dominance).
Our results demonstrate that pronoun comprehension preferences are acquired by language experience. While we cannot completely exclude a deficit at the syntax-pragmatic interface resulting from incomplete acquisition, we show that lack of exposure is a contributing factor to HSs' optionality in pronoun comprehension, supporting models that stress the importance of language exposure to explain differences observed between bilinguals and monolinguals.

What making inferences says about children's underlying linguistic knowledge
Monica Barbir; Kishore Sivakumar; Anne-Caroline Fiévet; Anne Christophe

From an early age, children can use knowledge about linguistic structures to scaffold further learning. Learners, however, do not have access to a language learning answer sheet that conveniently tells them whether the structure they have extracted from the input is the right one. Intuitively, we could say that any child who makes an inference or generalization based on a linguistic structure ought to think that this structure is actually present in the language. Yet, there is an inconspicuous trade-off for the learner: generalize early and bolster further acquisition but risk generalizing incorrectly, or generalize late and correctly but risk losing time not bolstering further acquisition. In a series of pre-registered experiments and conceptual replications, we examine generalization of a novel linguistic structure across the lifespan, from infancy, into childhood and all the way to adulthood. Our results reveal a non-linear developmental pattern: infants and adults generalize, but not pre-schoolers.

When less is more: Evidence from verb learning in Korean 4- and 5-year-olds
Sudha Arunachalam; Angela Xiaoxue He; Hyun-joo Song

An unfamiliar verb's linguistic context provides useful information to its meaning. Some contexts, e.g., "the tall boy is pilking" (modified subject), provide more information than others, e.g., "the boy is pilking" (unmodified subject), and may better facilitate verb learning. Here, we show evidence to the contrary. Korean-learning 4- and 5-year-olds successfully learned novel verbs from unmodified subjects. With modified subjects, however, they either struggled to process the modified noun phrases, or even when they did process them, they still failed to learn the verb. We suggest that processing modified subjects poses a challenge to children's parsers, and leaves insufficient resources for learning the verb. This is consistent with previous findings with English learners, providing more evidence that a linguistic context's processability interacts with its informativeness to shape verb learning across languages.

Word length and transitional probabilities impact word segmentation
Wenbo Yu; Tianlin Wang; Lu Wang; Jingjing Zhang; Dandan Liang

Statistical Learning (SL) has long been established as a powerful mechanism in language learning and development. Within this framework, transitional probability (TP) of various levels have been shown to confer differing task performance. Research in recent years has also pointed to the role of linguistic experience regarding how it may impact task performance. The present study addresses how word length of Mandarin and various TP levels affect learners' word segmentation by employing a complex artificial language with mixed length words. Results indicate that while participants performed equally well for disyllabic and trisyllabic contrasts under the high TP condition, only the disyllabic, but not the more challenging trisyllabic, contrasts could be segmented when the TPs were low. Together, our results highlight the impact of both linguistic experience and test materials in SL.

Poster Session 3

November 7, 2020
11:00 AM – 12:30 PM

An acquisition path for Speech Acts in English and their interaction with negation
Rebecca Woods; Tom Roeper

High negation complicates our interpretation of speech acts (Romero 2014, Krifka 2015, Taniguchi 2017, *i.a.*): it does not always lead to the rejection of a proposition, cf. exclamations, and it often communicates bias or a sense of suggestion.

High negation speech acts present in child directed speech, they are generally produced by children well after age 2. However, this timescale is not related to syntactic difficulties in raising negation. Dependent tag questions are numerous in children's input and present in their production from ~1;6, despite also being complex pragmatically.

We propose that tag questions, high negation in polar questions and polar exhortations exemplify three types of complex speech act that differ in the structural interplay between negation and speech act operators. An acquisition path falls out from these differences.

The acquisition of recursive possessives in child Tamil
Usha Lakshmanan

The current research investigated Tamil children's comprehension of multiple recursive possessives (using a picture-cum-story context task) with the goal of determining evidence for a two-step acquisition path for language-specific recursion: (1) Direct-Recursion with a conjunctive interpretation (via a simple Merge operation) and (2) Indirect-Recursion (iterative embedding of a phrasal-category within another of the same type). The findings indicated early emergence of indirect-recursion in the possessive domain in Tamil children (in contrast to what has been reported for Child English, Japanese and other languages), which we propose stems from distinguishing aspects of Tamil including branching directionality (consistently left-branching), direct form-function mapping (in relation to the genitive case form), and complex kinship terminology.

Age of acquisition effects in agreement in Turkish Sign Language (TİD)
Semra Ozdemir; Kadir Gökgöz

This study examines how native and non-native adult learners of TİD express and cross-reference arguments in person agreement (1) and locative agreement (2) (Quadros & Quer 2008; Costello 2016; Pfau et al. 2018) to determine whether certain aspects of this phenomenon, namely commitment to referential loci and argument ordering, are sensitive to age of acquisition following research which shows such effects for complex morpho-syntactic structures in other sign languages (Boudreault & Mayberry 2006). Here, 'native signers' refers to deaf adults who were exposed to TİD from birth by virtue of their deaf signing parents, and 'non-native signers' refers to deaf adults who received TİD input after the age of 3, generally around school age. Our findings show that the consistent cross-referencing of referential loci (on an argument and predicate) is not affected by delayed exposure, but Figure-Ground ordering is affected.

Auditory representations based on numerical information in 9 to 10 months-old infants
Silvia Benavides-Varela; Natalia Reoyo Serrano

The aim of the present study was to investigate the capacity limits of auditory memory with a focus on linguistic materials. Participants were 9 to 10 months-old infants who were taught to look to one side of the screen (right or left) when a given number of syllables was presented (e.g. 2), and to look to the other side when another set (e.g. 3 syllables) was presented. In the second phase we tested for generalization. The results indicate that infants learned and generalized 2 and 3 syllable-sets (Exp. 1; $p < 0.01$; $d' = 0.589$; Exp. 2; $p < 0.05$; $d' = 0.52$). They failed to distinguish 3 and 4 syllable-sets ($p = 0.45$; $d' = 0.19$). The results indicate a greater auditory memory capacity for syllables with respect to previously reported capacity limits using tone sequences.

Bayesian simulation of clause-level constructional knowledge in child language development: Active transitives and suffixal passives in Korean
Gyu-Ho Shin; Seongmin Mun

We investigate how Korean-speaking preschool children develop clause-level constructional knowledge in expressing a transitive event (active transitives; suffixal passives) through Bayesian modelling. Adapting the Alishahi and Stevenson's (2008) learning algorithm, we conducted a simulation by allowing our Bayesian model to learn constructional patterns as schematised input: pairings of morpho-syntactic and semantic-functional properties involving these constructions (with varying degrees of omission of sentential components). For this purpose, we devised artificial input based on characteristics of caregiver input manifested in CHILDES, and we measured posterior probabilities of each pattern per learning to estimate the degree of clustering for these constructions. Overall, we found dominance of several patterns and their inhibitory effects on the growth of the related patterns. Our findings suggest that constructional knowledge involving a transitive event proceeds from interactions between input

properties and domain-general learning capacities, adding to cross-linguistic evidence for the effectiveness of Bayesian modelling on representing human learning.

Children's interpretations of Every...some sentences
Cory Bill; Elena Pagliarini; Romoli Jacopo; Lyn Tieu; Crain Stephen

For adults, sentences containing the scalar term 'some', like 'the pig carried some of his rocks' are often interpreted as conveying a scalar inference (i.e. the pig didn't carry all of his rocks). Children have been found to access this inference less than adults. Sentences where 'some' is embedded under the universal quantifier 'every', like 'Every pig carried some of his rocks' have been associated with two inferences, which we call the 'NotEvery' inference (Not every pig carried all of his rocks) and the 'None' inference (None of the pigs carried all of his rocks). We used two experiments to investigate how children and adults interpret Some and EverySome sentences. The main findings were a) that, unlike Some sentences, children access inference-based interpretations of EverySome sentences at the same rate as adults, but b) whereas adults prefer the NotEvery inference, children prefer the None inference.

Children's sensitivity to prosody and ostension in answers to wh-questions
Bethany Stoddard; Jill de Villiers

This paper examines the effects of two often overlooked factors in children's answers to wh-questions: the prosodic contour of the question and complexity of the visual stimuli. We aimed to find out whether children are sensitive to the readings that different prosodic contours can give to otherwise identical moved wh-questions, and whether the complexity of the visual stimuli can affect the degree of exhaustivity in children's answers. We recorded 3- through 6-years olds' responses to in situ echo questions, moved echo questions (rising nuclear contour), and "real" wh-questions (falling nuclear contour). The questions were accompanied by complex photographs in one session, and schematic, comic-style drawings in the second session. Our results suggested that children are highly sensitive to prosody in their interpretation of moved wh-questions. Complex visual stimuli slightly reduced children's tendency to give a completely exhaustive answer to "real" wh-questions, though this effect lessened with age.

The development of DATIVE arguments: Evidence from Modern Greek clitics

Despina Oikonomou; Elena Anagnostopoulou; Vina Tsakali

The current study examines the development of Dative clitic-arguments in Modern Greek. The term Dative-clitics encompasses a number of diverse constructions (i.e. GOAL- and SOURCE-Indirect Object of Ditransitive verbs, Ethical Datives, Benefactive and Possessive Datives) and the predictions made by the theoretical proposals on the derivation of Dative-arguments have not been explored.

The current study aims to shed light on the development of Dative-arguments focusing on Greek DATIVE-Clitics examining GOAL-Datives, along with 'selected' BENEFACTIVE-clitics, and (inalienable) POSSESSIVE-clitics. Moreover, we compare children's performance of the aforementioned DATIVE-types to their performance on ACCUSSATIVE-Theme clitics. Our results show that the developmental trajectory of clitics seems to exhibit the order in (1).

(1) ACC-CL> POSS-CL ≥ GOAL-CL >BENEF-CL.

We argue that ACCUSATIVE-Clitics emerge significantly earlier compared to DATIVE-Clitics. Moreover, DATIVE-Clitics are not acquired simultaneously, showing an age effect across the groups and with BENEFACTIVE-Clitics being the last to be acquired.

The developmental interplay of OR and AND

Vina Tsakali

Previous studies on the acquisition of disjunction have shown that children often interpret disjunction conjunctively by either rejecting 'A or B' in contexts in which only A or only B is true, or by failing to assign the exclusive meaning on the disjunctive operator in main sentences. These two findings have been suggested to result from children's strengthening (STR) of disjunction (AvB) resulting in a conjunctive meaning. The current study aims to further elucidate the development of both logical operators OR and AND. Our findings show that there is a strong correlation between the development of disjunction and conjunction. We develop the idea that children's computation of Alternatives leading to conjunctive interpretation of OR is a pattern also found with the conjunction operator-AND; instead of STR the alternatives, AND allows for relaxation (RELAX) of the strict conjunctive meaning.

Early parental causal language input predicts later child causal verb understanding
Aslı Aktan-Erciyes; Elif Nur Atalay; Ayşe Şüheda Örengül; Pınar Karataş; Tilbe Göksun

Few studies investigated how parental causal input relates to children's use of causal language. Causal constructions in verbs can differ across languages. Turkish has both lexical and morphological causatives. Different types of context may elicit different amount of causatives. We ask whether (1)parental causal language input differs for different types of play and (2)early parental causal language input predicts children's later causal verb understanding. In a longitudinal study, 29 infants participated at 3 time points: Time1(M=14.51months,SD=1.45), Time2(M=19.21months,SD=1.32), and Time3(M=34.76months,SD=1.56). For Time1 and Time2, overall parental causal input was higher in the goal-oriented plays compared to free-play. Parents used lexical causal verbs more than morphological ones. Results showed that morphological causal verb input but not lexical causal verb input for both Times1 and 2 produced during free play activities predicted Time3 child causal verb comprehension which highlight the role of specific types of causal input on children's understanding of causal verbs.

Effects of instruction on L1-Mandarin L2-English learners' acquisition of English inverse scope
Mien-Jen Wu; Tania Ionin

This study examined if explicit instruction or input flooding can help L1-Mandarin L2-English learners acquire inverse scope readings of English quantifier-negation and double-quantifier configurations. As the inverse scope readings of the two structures can be derived from covert quantifier movement, we further investigated if learners learning about one configuration can lead to the learning of the other. Results showed that learners learned inverse scope through explicit instruction, but they allowed inverse scope more than English native speakers do, as inverse scope is dis-preferred with English native speakers. In addition, learners failed to generalize to the other structure they were not instructed on. Input flooding, however, led to no or only slight improvement. Therefore, we argue that when inverse scope is explicitly taught, it can be explicitly learned, but not truly acquired (cf. Schwartz 1993).

Exhaustive pairing errors in passives
Jelle Kisjes; Bart Hollebrandse; Angeliek van Hout

Children make exhaustive pairing (EP) errors with universal quantifiers, rejecting sentences like "All the boys are eating apples" when presented with a picture that has an extra apple. To further examine the role of grammatical function, we investigated children's interpretations of passive sentences with the universal quantifier in subject position. 66 English-speaking children were tested, of which 50 made EP errors, whereas 16 children responded adult-lik on active sentences. However, where the 50 children also consistently made EP errors on passives, 13 out of the 16 'adult-like' children did not correctly restrict the domain of quantification in passives. Our findings imply that the syntax-semantics interface of these children was still immature, even though they performed well on actives.Only when the alignment of grammatical function and thematic role is unmarked, do children correctly map a quantified subject onto Heim's (1982) restrictor. Children must learn to do this also in marked constructions.

Explicitness in referent introduction in heritage speakers' majority English
Tatiana Pashkova; Mark Murphy; Shanley Allen

Heritage speakers (HSs) are often dominant in their majority language (the main language of the society they live in) and seemingly indistinguishable from monolinguals in everyday interactions. However, research suggests that HSs differ from monolinguals, for example, in phonology and scope assignment. Our study indicates further differences between HSs and monolinguals, namely, in explicitness in referent introduction. Using a corpus of narratives produced by English monolinguals, as well as German, Greek, Russian, and Turkish HSs with English as their majority language, we show that HSs are more explicit in referent introduction, that is, more likely to introduce more referents. We suggest that this explicitness effect might be derived from HSs' frequent communication with their families, non-native speakers of English. Alternatively, the effect might stem from HSs' strategy to mention more referents to keep better track of the storyline. Our talk discusses the implications of these two interpretations for HS bilingualism.

Eye-gaze patterns in early infancy and later language and communication outcomes
Marisa Cruz; Jovana Pejovic; Cátia Severino; Sónia Frota

Eye-gaze patterns of European Portuguese (EP) learning-infants were examined at 5-6months and 8-10months while watching a video of a cartoon character talking and waving. Eye-gaze patterns were compared within and between age groups and related to longitudinal measures of receptive and expressive language (EP-CDI short forms), and of social communication and language (CSBS-DP). Infants increased their attention to the mouth over development. At 5-6months, infants attended longer to the eyes, while their increased attention to the mouth reflected lower later language abilities (i.e., lower receptive vocabulary by 12-18months). By contrast, at 8-10months, increased attention to the mouth, as well as eye-gaze to the waving arm, correlated with higher expressive vocabulary by 18-24months. Importantly, attention to the mouth was differentially associated to later language outcomes, depending on age. Overall, the study emphasizes the role of eye-gaze to (non-)linguistic social cues in early development of language and communication.

False belief in children and adolescents with Down Syndrome
Isabel Neitzel; Martina Penke

Introduction: To date, the evidence regarding False Belief (FB) abilities in individuals with Down Syndrome (DS) has been both sparse and contradictory. Our study is the first systematical investigation targeting the relation between FB, mental age (MA), syntactical abilities (SA) and verbal short-term memory (VSTM) in individuals with DS so far.

Method: 27 German children/adolescents with DS (aged 10;0 to 20;1 years) completed a location-change FB task and four standardized measures assessing nonverbal intelligence & MA, VSTM, receptive and productive SA.

Results: 37.5% (n=9) of our participants passed the FB task, whereas 62.5% (n=15) did not answer the target question correctly. A random forest analysis suggested VSTM to be a stronger predictor for FB performance than SA and MA.

Discussion: The results suggest that a substantial proportion of individuals with DS is impaired in FB understanding. VSTM came out as the strongest predictor for FB performance in a random-forest analysis."

How often do children hear verbs and see relevant events in everyday contexts?: Observing children in Spanish-speaking and English-speaking families
Aria Gaston-Panthaki; Priscilla Tovar-Perez; Marissa Young; Gemma Smith; Rayna Webb; Jane Childers

Across different experimental methods, children often hear a new verb while seeing a novel event during a learning phase. However, there is little data about the frequency with which children see a relevant action with a corresponding verb in everyday contexts. We observed Spanish- and English-speaking mother/toddler dyads to discover how often children see relevant events while hearing verbs. Spanish-speaking (n= 10) and English-speaking children (n= 10) aged 19-25 months or 27-36 months were videotaped playing in their home, and sessions were coded for verbs and events. We found that children heard verbs without seeing relevant events at least 88% of the time. When verbs were produced, it was often for children's actions, with a tight link (within 3s) between verbs and events. Experimental studies that emulate these learning conditions are needed. It is important to know how children learn verbs to understand how they acquire their native language.

Iconic sentences are not always easier: Evidence from bilingual German-Greek children
Christos Makrodimitris; Petra Schulz

This study examines the issue of iconicity cross-linguistically, testing the comprehension of the conjunctions AFTER (afu, nachdem) and BEFORE (prin, bevor) in 43 German-Greek bilingual children, using the same sentence-picture matching task in both languages (with the order counterbalanced).
In the iconic variant of AFTER the subordinate clause precedes the main clause (1a), whereas for BEFORE the iconic structure is (1b); the non-iconic structure for AFTER is (1b) and for BEFORE (1a).

(1)   a. After/before she put the plate on the table, she closed the window.
         b. She closed the window, after/before she put the plate on the table.

In both languages, iconic sentences were easier than non-iconic ones in the case of AFTER; BEFORE-sentences were easier than AFTER-sentences in the non-iconic order. This suggests that when the conjunction signals the order in which the events should be interpreted sentence-initially, non-iconic clause order does not impose additional processing costs."

Immature syntax or processing? What causes "Scope Marking Errors" in English-speaking 5-year-olds
Carolyn Jane Lutken; Geraldine Legendre

English-speaking children have been shown to make consistent errors in production and comprehension of biclausal questions. For example, children produce (1) when they mean (2) and respond to (3) with what he said he caught:

(1) Who do you think who we should ask?
(2) Who do you think we should ask?
(3) How did the boy say what he caught?

These errors resemble ""Wh-Scope Marking"" which is grammatical languages such as German, but not English. Together, these errors suggest children might temporarily entertain alternative grammar hypotheses. However, the current study finds not only that there is no correlation between children's errors in production and comprehension, but that a child's working memory (WM) is a predictor of how well a participant will perform on these language tasks. We suggest that this supports the hypothesis that limited processing mechanisms, rather than grammar competence, is the source of these errors."

Information structure shifts attention during pronoun processing in German
Regina Hert; Juhani Järvikivi

Previous research has revealed a cross-linguistic difference in the interpretation of object pronouns in children. While in some languages (e.g. German) children's performance is adult-like, in other languages (e.g. English), children seem to have difficulties interpreting object pronouns.
In this experiment, we manipulated information structure marking to investigate whether this would modulate the processing of object pronouns and reflexives in children and adults in German. We recorded participants' eye movements while they listened to the mini-stories and looked at the corresponding pictures.
Our results show that information structure can modulate the processing of object pronouns in both adults and children. Further, we assume that the divergence in children's gaze pattern for pronouns may be affected by a. processing speed or b. their processing is not yet fully constraint by adult grammar.

Does knowledge of social norms help children to understand irony?
Vera Hukker; Simone Sprenger; Petra Hendriks

To understand irony, listeners must reason about what the speaker believes and intends the listener to believe, as well as about the emotional attitude towards the situation that the speaker wants to convey. For children, learning to understand irony requires cognitive and social development (e.g., Theory of Mind, experience with situations in which irony occurs), but it is unclear how social development specifically contributes to irony understanding. Here, we investigate the role of knowledge of social norms. As irony often occurs in response to violations of norms, we hypothesize that knowledge of norms, which children show already from the age of 3, increases children's understanding of irony. In an irony comprehension task we compared violations of social norms to violations of situation-based expectations. Whereas social norms did not increase children's understanding of irony, speaker emotions were perceived as more negative, showing that social norms influence children's understanding of speaker emotions.

The L2 acquisition of intonation: A feature-based approach
Covadonga Sánchez-Alvarado

Within the Autosegmental-Metrical framework (Gussenhoven, 2004; Pierrehumbert, 1980), intonational categories (i.e. pitch accents) and contours may be described as a bundle of features constrained by semantic and pragmatic factors. This analysis allows for more direct crosslinguistic comparisons (Ladd, 1983). This study takes a feature-based approach, compatible with Mennen's (2015) L2 Intonational Learning theory, to examine how these intonational features are acquired by L2 speakers of Spanish considering the multidimensional nature of intonational grammars and the possibility of different scenarios: transfer, use of default contours or development towards the target grammar. The intonational contours used to convey three different types of focus (broad focus, informational subject focus, corrective subject focus) by Peninsular Spanish speakers and L1 American English-L2 Spanish learners were examined and lead to the conclusion that the specific pragmatic meaning being conveyed plays an important role in predicting the acquirability of these features, in addition to markedness and proficiency.

Labeling supports spatial encoding: Saying is better than showing for the midpoint relation
Nina Simms; Dedre Gentner; David Uttal

Spatial language is important for spatial communication, but also for spatial thinking (e.g., Pyers et al., 2010). Here we investigated whether hearing the term middle would support children's encoding of a complex and challenging spatial relation – the midpoint. We compared labels with another potent source of spatial information that is accessible to young children: maps (Huttenlocher et al., 1999; Uttal, 2005). 3- and 4-year-olds completed a challenging midpoint search task, in which they had to infer that a treasure would always be hidden in the middle of two landmarks (Simms & Gentner, 2019). Children who received labels during the task were more accurate than children who did not; however, the same was not true of maps. Labels – but not simple analog maps – were an effective support for young children's encoding of the midpoint. We suggest that labels may be a privileged symbolic representation for young children.

Preschoolers adapt syntax at multiple levels
Yi Lin; Malathi Thothathiri; Cynthia Fisher

Syntax requires balancing generalization with conservatism. Several studies show that adults engage multi-level distributional learning to achieve this balance, in both initial acquisition of artificial languages (Wonnacott et al., 2008) and continuous adaptation of their native language (Thothathiri & Braiuca, in press). They adapt the structural biases of individual verbs when the input mostly contains biased verbs (verb-bias cue reliably predicts structure), but show more across-verb generalization if the input mostly contains verbs that alternate among multiple structures (unreliable verb-bias cue). Here we investigated syntactic adaptation in four- and five-year-olds (N=100) using a training study with familiar dative verbs. Our results showed that young children, like adults, 1) dynamically adapt their use of known (not just novel) verbs, and 2) modulate their adaptation according to whether verb-bias was a reliable cue in their new input. Thus, syntactic adaptation in young children is guided by multi-level distributional tracking and cue validity.

Processing causatives in first language acquisition: A computational approach
Guanghao You; Moritz Daum; Sabine Stoll

The goal of this study is to investigate how the information distributions in child and child-directed speech interact over time. We exploit a semantically salient category, namely lexical causatives, and simulate speech processing with a computational approach, so as to probe the distributional features in child speech, child-directed speech and adult-directed speech. Both word embeddings and graph theory are employed to construct graphs that represent causative networks inferring from information distribution. Our data comes from the Manchester language acquisition corpus and the spoken British National Corpus. The main findings are (i) both child and child-directed speech show an increase of semantic complexity over time and (ii) while remaining more complex than child speech, child-directed speech strongly adapts to the development of child speech and exhibits reduced complexity than adult-to-adult speech, potentially facilitating the language development of children.

Repairing onsetless syllables during late childhood
Gemma Repiso Puigdelliura

In English, onsetless syllables preceded by a consonant in word-external position (e.g., an.apple C#V) are often repaired with ambisyllabic consonants (Kahn, 1976). However, instances of glottal stop insertion have been reported in early childhood (Newton & Wells, 2002). The present research seeks to fill the empirical gap of C#V repairs during late childhood. 24 children, divided into a group of younger (6;5 to 8;8) and a group of older children (9 to 10;4), and 10 adults participated in this study. Twenty-four C#V sequences were elicited in stressed (e.g., this olive) and unstressed syllables (e.g., this iguana). Tokens were classified as presenting modal or glottal phonation. Results show that 6-8-year-olds produce glottal phonation more frequently than 9-10-year-olds (B = -1.70, z = -2.62, p < 0.001) and adults (B = -3.22, z= -3.83, p < 0.001). This suggests that that C#V between-word junctures are still developing during late childhood.

The role of case morphology at the syntax-discourse interface in L2 German
Mathieu Lecouvet

Previous research pointed to learners' difficulty in using inflectional morphology at the interface with meaning and syntax, in particular when L1 and L2 differ in the mapping of functional features onto morphemes. Our study examines the interplay between learners' command of case morphology and their acquisition of syntax-discourse interface phenomena in L2 German (L1 French). Results showed that case command (measured by a fill-in-the-blanks) was a reliable predictor of convergence in discourse-to-syntax mappings (measured by a sentence manipulation task).

Second language acquisition of placement cross-modally: A view from hearing learners of ASL
Anne Therese Frederiksen

When acquiring placement events (e.g. "the woman put the cup on the table") in an L2, learners must not only learn the appropriate vocabulary in the target language but may also need to reorganize semantic distinctions within their conceptualization of placement events. In this study, we elicited speech, sign and gestural expressions of placement in ASL and English and tested whether 1) the transparency of ASL placement verbs makes them easier to acquire for L2 learners, and 2) L2 semantic distinctions influence the L1 across modalities. Results suggests near-native semantic organization in L2 learners' ASL, despite intermediate proficiency. In English, the ASL learners performed like English monolinguals in speech, but their gesture results showed more alignment with ASL placement distinctions. Thus, acquisition of target-like placement distinctions may be less challenging for different-modality L2 learners and L2 semantics may affect how placement is conceptualized in the L1.

Sentence Repetition Task as a measure of language dominance
Jacopo Torregrossa; Maria Andreou; Christiane Bongartz

We aim to validate Sentence Repetition Tasks as instruments to assess bilingual children's language dominance on a par with vocabulary measures and questionnaire information related to children's exposure to each language in different contexts. We designed two versions of a SRT in two syntactically similar languages, i.e., Greek and Italian. These two versions are matched for number of sentences, syntactic complexity, number of words and syllables. We found a correlation between the differential scores between the two SRTs, the two vocabulary measures and the indexes concerning cumulative language exposure in each language. Furthermore, children's performance in different structures (early vs. late acquired) were shown to be sensitive to different contexts of language exposure (home language history and current language use, respectively).

"Small big flowers" or "small and big flowers"? Simple is better and roll-up is too complex for Romanian 5-year-olds

Adina Camelia Bleotu; Tom Roeper

The paper brings experimental evidence that Romanian 5-year-olds handle simple coordination better than recursion and often interpret recursive adjectives as coordinated. Unlike English, an A N language ("big flowers"), Romanian is N A ("flori mari"). It stacks recursive adjectives in the opposite order ("flori mari mici", 'flowers big small'= "small big flowers"), which is captured by Cinque's (2005) Roll-Up-of-N. 20 5-year-olds and 20 adults were tested on adjective recursion and coordination in comprehension and production. Subjects were shown 4 picture sets involving 16 big/ small flowers, tall/ short giraffes, long/ short blades of grass, fat/ thin squirrels. They had to name/draw around sets involving 2/3 adjectives (e.g. "big and small", "big small small"). Unlike adults, who performed at ceiling, children used coordination as default, and most errors in recursion were coordinative. Thus, although indirect PP-recursion is available to 5-year-olds, Adj-recursion is not, posing challenges for acquisition through complex Roll-Up.

On the structural modifications of European Portuguese syllable-final tap by L1-Mandarin learners

Chao Zhou; Anabela Rato; M. João Freitas

Prior research revealed that L2 structural modifications can arise either from perception or production. In this study, we first examined whether the structural repairs (epenthesis and deletion) employed by L1-Mandarin learners to accommodate European Portuguese (EP) syllable-final tap are caused by misperception. We hypothesize that, if these repairs were perceptually driven, in comparison with natives, learners would experience more difficulty in discriminating between the target and its repaired form. An AXB discrimination task with 10 natives and 31 L1-Mandarin learners that studied EP for 2 years showed that only the epenthesis has a perceptual basis. In the second experiment using the same perceptual task to test whether the L1 phonotactic constraint can eventually be overcome, 30 learners with more L2 experience (M=5.54 years) did not perform better in detecting the illusory vowel, suggesting that having more L2 experience might not be sufficient for developing optimal L2 perception.

Studying an Arabic-German bilingual population's production and comprehension of relative clauses longitudinally – Preliminary results
David Öwerdieck; Cornelia Hamann; Lina Abed Ibrahim

Relative clauses (RCs), particularly object relative clauses (ORs) involving intervening lexical NPs, are difficult for young children across languages (Friedmann et al. 2009), while morphological marking differentially influences mastery (Belletti et al. 2012). We report on three experiments on the comprehension, elicited production and repetition of German RCs by 10 German-Arabic bilingual refugee-children (mean age at T1: 9;4) in comparison with 10 monolingual German controls (mean age: 9;11). The bilinguals were tested at two time points a year apart.

Our results show that comprehension of RCs is relatively good in this age group. In production, there is a clear subject-object asymmetry. Monolinguals produce passives instead of ORs while our Arabic/German bilinguals resort to resumptives. Both can be taken as avoidance of intervention. A clear intervention effect was found in sentence repetition for both groups. In conclusion, our findings support the claim that intervention crucially contributes to difficulties with ORs.

Valid measurement of vocabulary development in bilingual toddlers
Adriana Weisleder; Elizabeth B. Miller; Caitlin F. Canfield; Helena Wippick; Ancelma Vazquez; Daniel Shaw; Pamela Morris; Alan Mendelsohn

A large fraction of children around the world grow up learning more than one language, yet most methods for assessing language development use standards based on monolingual populations. Despite advances in the assessment of bilingual children, many questions remain about how to obtain an accurate and fair representation of bilingual children's vocabularies. The goal of the current study was to compare two brief parent report instruments for measuring the vocabularies of Spanish-English bilingual toddlers living in the United States. We assess these methods in terms of item appropriateness and compare total and conceptual vocabulary scores to those of monolingual children matched in socioeconomic status. Findings suggest promise in using the CDI Short Forms as an efficient way of assessing vocabulary in bilingual toddlers. They also highlight the importance of evaluating the cultural appropriateness of the items and point to challenges in comparing to monolingual norms.

Do we learn from our prediction mistakes? Evaluating error-based theories of language acquisition

Judit Fazekas; Andrew Jessop; Julian Pine; Caroline Rowland

While the role of prediction in language processing has been thoroughly examined, its contribution to language acquisition has yet to be determined. Error-based theories of language acquisition suggest that children, like adults, continuously make and evaluate predictions in order to reach an adult-like state of language use. Our approach uses a four-phase prime surprisal study to assess the main implication of these theories: that surprising input leads to more lasting language change than predictable input. Our results support this prediction as both the 5-6 year old child (n=72) and adult (n=72) participants' pre- to post-test production shifted towards the dative structure they were exposed to in surprising sentences. This effect was significant in both age groups together, and in the child group separately when excluding participants with ceiling performance in the pre-test. However, we only found reliable evidence for immediate prime surprisal effects in the adult group.

When children interpret disjunction exclusively

Kazuko Yatsushiro; Andreea Nicolae; Mana Asano; Yoichi Miyamoto; Shuki Otani

It has been observed that chidlren accept the use of disjunction when both disjuncts are true (2DT) but reject when only one of the disjuncts is true (1DT) (Singh et al. for English and Tieu et al for French and Japanese.) These authors explained these results by arguing that children do not consider conjunction as an alternative. The formulation of their analysis suggests that this should be the case across the board, predicting that the position of disjunction should have no effect on the availability of an exclusive interpretation.

We investigate whether the exclusive interpretation is unavailable when children cannot assign an interpretation to the conjunctive alternative, due to the position of the disjunction in the clause, namely the object position. We tested the interpretation of disjunction in objects, scrambled to the sentence-initial position in Japanese. Children assigned exclusive interpretation more readily in the object position, supporting our hypothesis.

Who talks to the child? Analysing linguistic input in Sesotho and French corpora
Georgia Loukatou; Camila Scaff; Alejandrina Cristia; Naomi Havron

Mother-child dyad speech has long been the focus of early input studies, despite evidence suggesting that non-maternal input can be important for language outcomes. Few studies describe child-directed speech from various speakers, and even fewer investigate this across cultures. In this study, we analyse speech produced around and to children by their mother, other children and adults, in culturally diverse settings. We annotated one Sesotho and two French corpora. Child-directed speech was significantly prevalent in all corpora. However, the input composition was dramatically different; maternal input was dominant in French and other children's input was dominant in Sesotho. In terms of speech quality, child-directed speech from other children and adults presented similarities with maternal speech within each culture. These results invite further cross-cultural early input research, in order to check if these speech compositions and qualities are representative of WEIRD and non-WEIRD quantifiable distinctions.

Word learning during shared book reading: Evidence from eye tracking
Nicole Altvater-Mackensen

Reading picture books with toddlers is a common activity which provides rich cues for language learning: shared book reading fosters vocabulary growth and general language development. However, to date little is known how children use the rich input provided by natural reading for word learning. The current study monitored toddlers' attention during one-to-one picture book reading using eye tracking glasses. Subsequently, recognition of a novel label-object pair that had been embedded in the story was assessed in a preferential looking task. First analysis (n=43) indicate that toddlers successfully learned the novel label-object association during shared reading and that their representation was sufficiently detailed to detect manipulations in the phonological form of the label or the shape of the referent. Importantly, individual differences in attention to book and face during reading relate to toddlers' word learning and their sensitivity to mispronunciations, suggesting that visual speech information contributes to natural word learning.

Zipfian distribution and language learning
Ori Lavi-Rotbain; Inbal Arnon

Across languages, words follow a Zipfian distribution in which words are more predictable compared to less skewed distributions. However, little work has examined the possible implications of such predictable distributions for language learning. Here, we use the information-theoretic measure of efficiency, which quantifies how predictable a distribution is relative to the uniform, to examine the effect of predictability on word segmentation. We first show that child-directed speech across 15 languages from eight language families have similar efficiency values (mean=0.63, SD=0.03). We then use a classic word segmentation task while manipulating efficiency and distribution shape. While distribution shape (binary versus Zipfian) did not affect accuracy, efficiency did: segmentation for children (N=147) and adults (N=302) was uniquely facilitated at language-like efficiency, but not in higher values. Importantly, this effect holds also for the low-frequency words. These novel findings suggest that efficiency levels found in natural language provide an optimal environment for learning.