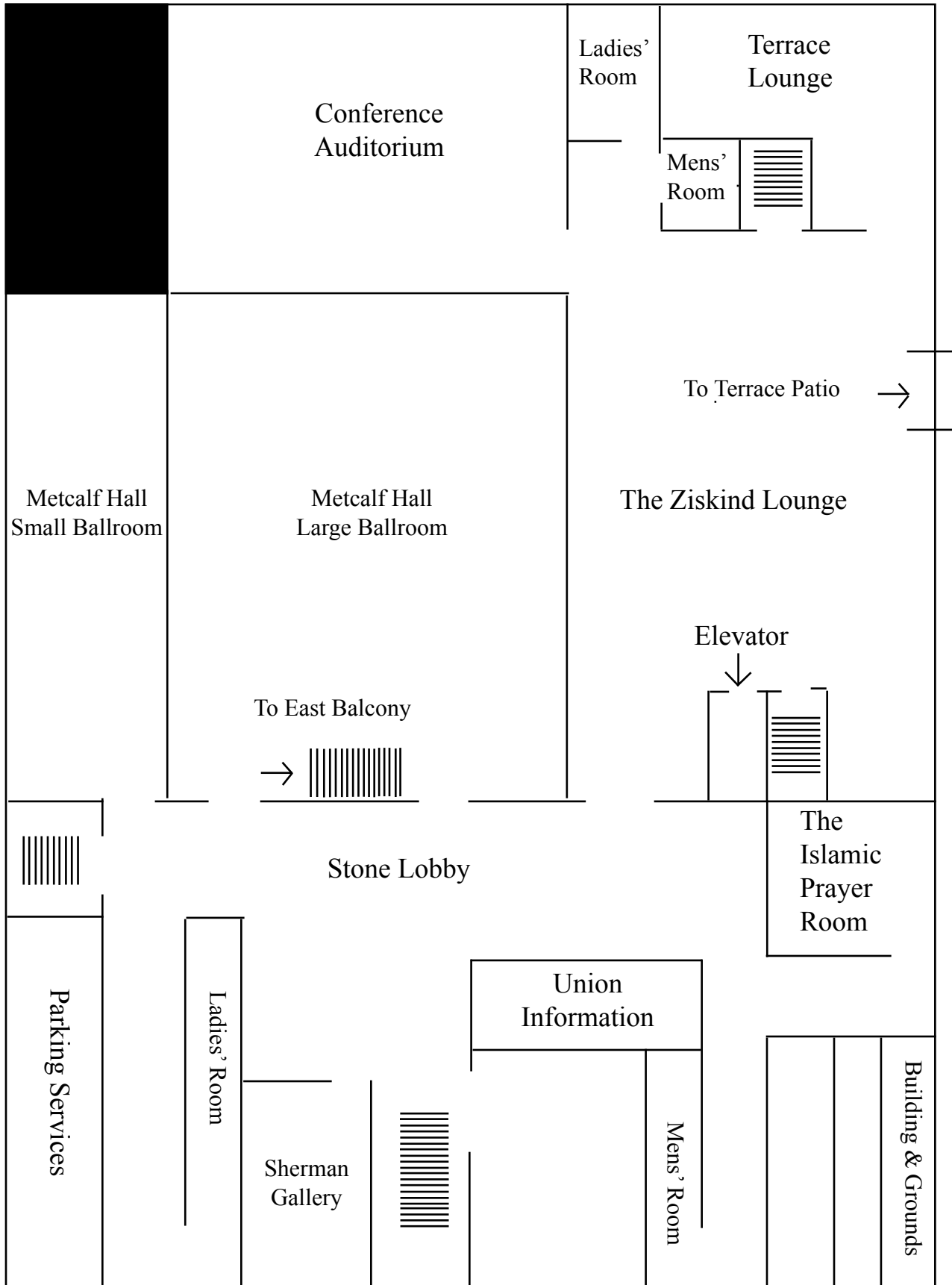The 35th Annual

Boston University Conference on Language Development

November 5-7, 2010

BUCLD 35

Map of George Sherman Union (Second Floor)

Ladies' Room

Terrace Lounge

Conference Auditorium

Mens' Room

To Terrace Patio →

Commonwealth Avenue

Metcalf Hall Small Ballroom

Metcalf Hall Large Ballroom

The Ziskind Lounge

Elevator

To East Balcony

→

The Islamic Prayer Room

Stone Lobby

Parking Services

Ladies' Room

Union Information

Mens' Room

Building & Grounds

Sherman Gallery

↓ To First Floor and Main Entrance

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Welcome

Our 35th Year

We would like to welcome all of you to the Thirty-Fifth Annual Boston University Conference on Language Development. This conference was started in 1976 and has been organized by graduate students in Boston University's Program in Applied Linguistics ever since. Over the years, various faculty members have generously given their time and energy as advisors to the conference, and several generations of graduate students have achieved continuity from one year to the next. The organizers have been honored to host participants from around the world, including linguists, psychologists, and other researchers of language acquisition and development. We thank them all for the research accomplishments they have shared with us here over the past thirty-four years.

Invited Speakers

At this year's conference, we are honored to have Rachel Mayberry and William Snyder as our featured speakers. Rachel Mayberry will present Friday's keynote address, titled "Nurture and biology in language acquisition: What the hands say." Saturday's program will close with William Snyder's plenary address, "Children's grammatical conservatism: Implications for syntactic theory." We are pleased to once again host a symposium during Saturday's lunch period. This year's symposium is titled "The acquisition of number words: Integrating formal and developmental perspectives" with speakers Susan Carey, Justin Halberda, Jeffrey Lidz, and Julien Musolino.

Paper and Poster Presentations

The rest of the program is devoted to a wide range of papers and posters chosen from submitted abstracts. This year we received 423 submissions, each of which was sent out to five reviewers for anonymous review. Of these, 81 papers and 72 posters were selected for presentation, for an acceptance rate of 36%. We are sorry not to have had space to include more of the many excellent submissions we received. We have also included abstracts for those who generously agreed to serve as alternates in case of cancellations.

Proceedings

Once again this year we will be publishing the Proceedings of the Conference, which includes papers presented and those selected for alternate status. Information about ordering copies is available in your registration folders and at the Cascadilla Press table during the book exhibit. We will also have an online supplement to the proceedings for papers given as posters, which will be published on the web by BUCLD.

Enjoy

Here at Boston University, we are committed to providing an ongoing forum for work in the diverse field of language development. We hope you will enjoy the conference!

The 2010 Conference Committee
Nick Danis
Kate Mesh
Hyunsuk Sung

Shanley Allen, Faculty Advisor
Paul Hagstrom, Faculty Advisor
Cathy O'Connor, Faculty Advisor

Coordinators
Alia Biller
Esther Chung
Amelia Kimball
Pengfei Li
Jason Lucas
Andrea Paquin

Boston University Conference on Language Development
96 Cummington Street. Room 244
Boston, MA 02215
e-mail: langconf@bu.edu
phone: (617) 353-3085

For general information about the conference, visit our new website at:
http://www.bu.edu/bucld

Acknowledgements

Nameera Akhtar
Adam Albright
Shanley Allen
Richard Aslin
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Clifton Pye
Marnie Reed
Mabel Rice
Tom Roeper
Jason Rothman
Monika Rothweiler
Caroline Rowland
Phaedra Royle
Jenny Saffran

Acknowledgements

General Information

• Registration and Session Locations

All sessions will be held in the George Sherman Union, 775 Commonwealth Avenue. Registration will take place in the 2nd floor lobby (see diagram on the back of the front cover). You may register on Friday starting at 8:00 AM, or Saturday and Sunday starting at 8:30 AM. Please register before attending any sessions. We rely greatly upon registration fees to cover the costs of the Conference. We appreciate your willingness to wear your name badge; you may be asked to present it before entering sessions.

• Plenary Events

The **Keynote Address** will be delivered by Rachel Mayberry on Friday at 8:00 PM in Metcalf Large. Poster Session I (attended) with desserts will immediately follow in the Terrace Lounge and the Ziskind Lounge.

The **Plenary Address** will be given by William Snyder on Saturday at 5:45 PM in Metcalf Large. Poster Session II (attended) with hors d'oeuvres will immediately follow the address in the Terrace Lounge and the Ziskind Lounge.

A **Lunchtime Symposium** on "The acquisition of number words: Integrating formal and developmental perspectives" with presentations from Susan Carey, Justin Halberda, Jeffrey Lidz, and Julien Musolino will be held on Saturday at 12:15 PM in Metcalf Large.

• Poster Sessions

Poster Session I: 36 posters will be on display in the Terrace Lounge and the Ziskind Lounge. There will be two attended Poster Sessions on Friday: one at 3:00 PM and one at 9:15 PM. Refreshments will be available at both sessions.

Poster Session II: 36 posters will be on display in the Terrace Lounge. There will be two attended Poster Sessions on Saturday: one at 3:15 PM and one at 7:00 PM. Refreshments will be available at both sessions.

• Special Sessions

The **Society for Language Development** will hold its seventh annual symposium, "Cognition and Language" on Sunday, November 7 at 2:30, in Metcalf Large, with a reception following immediately in Metcalf Small. Speakers include Noam Chomsky and Charles R. Gallistel.

A special session entitled **"What's Hot and How to Apply"** will be facilitated by Peggy McCardle (NIH) and Joan Maling (NSF) on Saturday at 8:00 AM in the Conference Auditorium.

NSF and NIH consultation hours will be held in the Ziskind Lounge. NIH hours will be held on Friday 9:30–12:00 noon and 2:30–5:00 PM and on Saturday 9:30–12:00 noon and 2:30–5:00. NSF hours will be held on Saturday 9:30–12:00 AM and 2:30–5:00 PM.

A **BUCLD Business Meeting** will be held on Friday, 12:30- 1:45 PM in the Conference Auditorium.

• Additional Information

Parking is available at the Agganis Arena Garage (925 Commonwealth Ave.) for $1 per hour and at the Warren Towers Garage (700 Commonwealth Ave.) for $12 per car per day. Please mention you are with the BUCLD, if asked. Free on-street parking is also available on Sunday. More information can be found at http://www.bu.edu/parking/.

Temporary luggage storage space be made available next to the registration desk. The area will be staffed during conference sessions only. Although a student volunteer will be present in the registration area, participants leave their luggage at their own risk.

General Information

A **nursing room** will be available for nursing mothers in GSU 310-311.

Wireless internet access is available throughout the GSU. Information for connecting is given in the box below.

Publishers' exhibits will be held in the Ziskind Lounge on Friday from 9:00 AM to 5:30 PM, Saturday from 10:00 AM to 5:30 PM and Sunday from 9:00 AM to 1:00 PM. For a list of exhibitors, see page 71.

Refreshments will be served in Ziskind Lounge before the morning sessions and during breaks, and during attended poster sessions. A list of local restaurants is provided in your registration packet. The Food Court on the ground floor of the George Sherman Union offers a wide selection, but is cash only .

The 36th Annual Boston University Conference on Language Development is tentatively scheduled to be held on November 4-6, 2011, at Boston University.

The Registration desk provides the following services:
ASL Interpreters (Please inquire when you arrive.) ~ Message Board ~ Lost and Found ~ Campus Maps ~ MBTA Maps

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INTERNET INFO

Guest ID: 505418

Account Name: bucld35

NIH/NSF Consultation Hours

Peggy McCardle (NIH) and Joan Maling (NSF)

NIH – Friday – 9:30 – 12:00 & 2:30 – 5:00
Saturday – 9:30 –12:00 & 2:30 – 5:00

NSF – Saturday – 9:30 –12:00 & 2:30 – 5:00

Schedule at-a-glance

Friday, November 5

8:00 am	Registration Begins
9:00 am - 10:30 am	Talks
10:30 am - 11:00 am	Morning Break with refreshments
11:00 am - 12:30 pm	Talks
12:30 pm - 2:00 pm	Lunch Break / BUCLD Business Meeting
2:00 pm - 3:00 pm	Talks
3:00 pm - 4:15 pm	Poster Session I Attended with refreshments and Afternoon Break with refreshments
4:15pm - 5:45 pm	Talks
5:45 pm - 8:00 pm	Dinner Break
8:00 pm - 9:15 pm	Keynote Address
9:15 pm- 10:00 pm	Poster Session I Attended with refreshments

Saturday, November 6

8:30 am	Registration Begins
8:00 am - 9:00 am	Funding Symposium
9:00 am - 10:30 am	Talks
10:30 am - 11:00 am	Morning Break with refreshments
11:00 am - 12:00 pm	Talks
12:15 pm - 2:15 pm	Lunch Symposium
2:15 pm - 3:15 pm	Talks
3:15 pm - 4:30 pm	Poster Session II Attended with refreshments and Afternoon Break with refreshments
4:30 pm - 5:30 pm	Talks
5:45 pm - 7:00 pm	Plenary Address
7:00 pm - 7:45 pm	Poster Session II Attended with refreshments

Sunday, November 7

8:30 am	Registration Begins
9:00 am - 10:30 am	Talks
10:30 am - 11:00 am	Morning Break with refreshments
11:00 am - 1:00 pm	Talks
2:30 pm - 6:00 pm	Society for Language Development 7th Annual Symposium

Time	Session A (Metcalf Small)	Session B (East Balcony)	Session C (Conference Auditorium)
9:00	E. Conwell, T. O'Donnell, J. Snedeker: Stored chunks and generalized representations: The case of the English dative alternation	P. Fikkert, A. Chen: The role of word-stress and intonation for word recognition in Dutch 14- and 24-month-olds	T. Ionin, S. Montrul, H. Santos: Transfer in L2 and L3 acquisition of generic interpretation
9:30	D. Yurovsky, D. Fricker, C. Yu, L. Smith: Building and using partial knowledge in statistical word learning	M. Babineau, R. Shi: Processing of French liaisons in 24-month-old infants	N. Modyanova, A. Perovic, C. Hirsch, K. Wexler: What drives children's development of definite determiners
10:00	K. Smith, E. Wonnacott: Elimination of unpredictable linguistic variation through iterated learning	A. Mata, A. Santos: Intonation of early answers to confirmation-seeking questions in spontaneous speech	N. Vasic, E. Blom: Production and processing of determiners in Turkish-Dutch child L2 learners
10:30	BREAK (Ziskind Lounge)		
11:00	C. Lukyanenko, C. Fisher: Where are the cookies? 3-year-olds use number-marked verbs to anticipate noun-number in online sentence interpretation	J. Pine, B. Ambridge, C. Rowland: Semantic verb classes and the retreat from overgeneralization errors	N. Rakhlin, S. Kornilov, M. Babyonyshev, J. Reich, E. Grigorenko: Comprehension of center-embedded and right-branching relative clauses by Russian-speaking children with language impairment
11:30	A. Omaki, I. Davidson White, T. Goro, J. Lidz, C. Phillips: Using verb information to escape from kindergarten-paths in English and Japanese wh-questions	C. Noble, A. Theakston, E. Lieven: Comprehension of intransitive argument structure: the first-noun-as-agent bias	M. Blossom, M. Rice: Early usage patterns of DO in multiple functions in children with and without Specific Language Impairment
12:00	Z. Qi, S. Yuan, C. Fisher: Where does verb bias come from? Experience with particular verbs affects online sentence processing	N. Kazanina, S. Baker, B. Hood, H. Seddon: When throwing is not catching: children's understanding of intentionality of transfer verbs	H. Clahsen, S. Chilla, M. Rothweiler: Subject verb agreement in Specific Language Impairment: A study of monolingual and bilingual German-speaking children
12:30	LUNCH BREAK / BUCLD BUSINESS MEETING (Conference Auditorium)		
2:00	C. Lew-Williams, B. Pelucchi, J. Saffran: Isolated words enhance statistical learning by 9-month-old infants	J. Renn: Patterns of style in the language of African American children and adolescents	V. Chondrogianni, T. Marinis, S. Edwards: (A)symmetries in the production and on-line comprehension of articles and clitics by Turkish-Greek L2 children: Same or different from monolingual Greek children with SLI?
2:30	C. Shafto, C. Conway, S. Field, D. Houston: Visual sequence learning in infancy: A domain-general predictor of vocabulary ability	K. Miller: When input matters, and when it don't: Acquisition of variable input by English-speaking children	S. Manika, S. Varlokosta, K. Wexler: Greek-speaking children with Specific Language Impairment (SLI) do not omit clitics
3:00	ATTENDED POSTER SESSION I (Terrace Lounge and Ziskind Lounge)		
4:15	L. Liu, R. Kager: Is statistical learning affected by perceptual reorganization? Dutch infants' sensitivity to lexical tone discrimination	T. Grüter, C. Lew-Williams, A. Fernald: Grammatical gender in L2: Where is the problem?	D. Hunsicker, S. Goldin-Meadow: Creating hierarchical structure: Do noun phrases appear in homesign?
4:45	A. Cristia, A. Seidl: Infants' processing of prosody predicts toddlers' grammatical vocabulary	A. Melançon, R. Shi: Online comprehension of newly acquired nouns and abstract knowledge of grammatical gender	A. Lieberman, M. Hatrak, R. Mayberry: The development of eye gaze control for linguistic input in deaf children
5:15	R. Mazuka, Y. Sogabe: Phonemic discrimination at word-initial, word-medial, and word-final positions with and without lexical pitch-accent in Japanese	I. Barriere, L. Goyet, T. Nazzi, S. Kresh, G. Legendre: The representation of subject-verb agreement in French-learning toddlers: New evidence from the comprehension of an infrequent pattern of pseudoverbs	M. Kuntze, C. Goodman, N. Berlove, S. Fish, K. Mesh: A language with polycomponential vocabulary: Issues of linguistic typology and the analysis of ASL vocabulary development
5:45	DINNER BREAK		
8:00	KEYNOTE ADDRESS: (Metcalf Large) "Nurture and biology in language acquisition: What the hands say" Rachel Mayberry, University of California at San Diego		
9:15	ATTENDED POSTER SESSION I (Terrace Lounge and Ziskind Lounge)		

Time	Session A (Metcalf Small)	Session B (East Balcony)	Session C (Conference Auditorium)
8:00	NSF/NIH FUNDING SYMPOSIUM: What's Hot and How to Apply (Conference Auditorium)		
9:00	H. Wang, B. Höhle, N. Ketrez, A. Kuntay, T. Mintz: Cross-linguistic distributional analyses with frequent frames: The cases of German and Turkish	B. Pearson, T. Roeper, M. Grace: Quantifier spreading is not distributive	T. Xu: Children's 2Aux negative questions: Parameter-setting or the lexicon?
9:30	S. Yuan, C. Fisher, P. Kandhadai, A. Fernald: You can stipe the pig and nerk the fork: Learning to use verbs to predict nouns	K. Syrett, J. Musolino: Children's collective and distributive interpretations of pluralities with number	M. Hara: Subject RC-over-object RC advantages in L2 processing of Japanese
10:00	S. Arunachalam, E. Escovar, M. Hansen, S. Waxman: Verb learning from syntax alone at 21 months	R. Montalto, A. van Hout, P. Hendriks: Acquiring the ordering of Italian near-synonymous quantifiers	J. Lidz, A. Gagliardi: Morphosyntactic cues impact filler-gap dependency resolution in 20- and 30-month-olds
10:30	BREAK (Ziskind Lounge)		
11:00	P. Brosseau-Liard, D. Hall: Explaining the disambiguation effect in lexical development: New evidence favoring constraints over social-pragmatic knowledge	A. Kerkhoff, E. de Bree, E. van Baal, F. Wijnen: Implicit learning and dyslexia: non-adjacent dependency learning in infants with a familial risk of dyslexia	J. Choe: What seems to be real may be illusory: Acquisition of raising with an experiencer
11:30	A. Fernald, N. Hurtado, R. Bion, V. Marchman: Zip code as a predictor of toddlers' use of the mutual exclusivity strategy	O. Demir, L. Applebaum, S. Levine, K. Petty, S. Goldin-Meadow: The story behind parent-child book-reading interactions: Relations to later language and reading outcomes	E. Lau: Complete uniformity: Early acquisition of the passive in Cantonese
12:15	LUNCH SYMPOSIUM: (Metcalf Large) "The acquisition of number words: Integrating formal and developmental perspectives" Speakers: Susan Carey, Justin Halberda, Jeffrey Lidz, Julien Musolino		
2:15	C. Brojde, E. Colunga: Bilingual and monolingual children attend to object properties differently in a word learning task	K. Gor, A. Lukyanchenko: Perceptual correlates of L1 phonological representations in Russian-English heritage speakers	L. Grohe, A. Müller, P. Schulz: How children "copy" long-distance structures: The production of complex wh-questions in German
2:45	M. Johanson, A. Papafragou: Effects of labels on children's category boundaries	Y. Yu, V. Shafer: Electrophysiological indices of six-month-olds' sensitivity to English vowels: Language experience and gender effect	J. Chen, Y. Shirai: The acquisition of relative clauses in child Mandarin
3:15	ATTENDED POSTER SESSION II (Terrace Lounge and Ziskind Lounge)		
4:30	J. Hartshorne, R. Nappa, J. Snedeker: Ambiguous pronoun processing development: Probably not U-shaped	A. van Hout, N. Gagarina, W. Dressler, *and 25 more authors*: Learning to understand aspect across languages	N. Feldman, E. Myers, K. White, T. Griffiths, J. Morgan: Infants and adults use word-level statistics in phonetic category acquisition
5:00	C. Schulze, S. Grassmann, M. Tomasello: Relevance inferences in 3-year-olds	L. Domínguez, M. Arche, F. Myles: Testing the predictions of the Feature-Assembly Hypothesis: Evidence from the acquisition of Spanish aspect morphology	D. Swingley, C. Slaton: Word-forms can help learners form phonetic categories
5:45	PLENARY ADDRESS: (Metcalf Large) "Children's grammatical conservatism: Implications for syntactic theory" William Snyder, University of Connecticut		
7:00	ATTENDED POSTER SESSION II (Terrace Lounge and Ziskind Lounge)		

Time	Session A (Metcalf Small)	Session B (East Balcony)	Session C (Conference Auditorium)
9:00	L. Serratrice, A. Hesketh, R. Ashworth, L. Lodovica: The use of indirect speech clauses in a narrative context: A priming study	L. Pozzan, G. Bencini, E. Quirk, N. Eng, V. Valian: The acquisition of English main and embedded questions in child and adult SLA: An elicited production study	G. Jarosz: The roles of phonotactics and frequency in the learning of alternations
9:30	I. Arnon: From chunk to segment: U-shaped patterns in the effect of frames on children's word production	R. Slabakova, G. Campos, T. Leal Mendez, P. Kempchinsky, J. Rothman: Pragmatic features at the L2 syntax-discourse interface	I. Berent, K. Harder, T. Lennertz: Phonological universals in early childhood: Evidence from sonority restrictions
10:00	M. Kirjavainen, A. Theakston: Infinitival-to omission errors in child language	M. Iverson, J. Rothman: When L2 syntax is target-like and target-deviant at the same time: L1 preemption again!	N. Boll-Avetisyan: Probabilistic phonotactics and syllable structure in L2 lexical acquisition
10:30	BREAK (Ziskind Lounge)		
11:00	L. Schneidman, S. Goldin-Meadow: Child-directed speech and vocabulary acquisition in a Mayan village	M. Sutton, C. Lukyanenko, J. Lidz: The onset of Principle C at 30 months: The role of vocabulary, syntactic development, and processing efficiency	H. Engemann: The expression of motion events in bilingual first language acquisition: Evidence for typological constraints in English and French
11:30	M. Carlson, M. Sonderegger, M. Bane: Global properties of the phonological network in child-directed speech	K. Clackson, H. Clahsen: Online processing of cataphoric pronouns by children and adults: Evidence from eye movements during listening	S. Shayan, O. Ozturk, M. Bowerman, A. Majid: Development of cross-modal Mappings of pitch to thickness.
12:00	A. Pinkham, T. Kaeffer, S. Neuman: Representational demand positively influences kindergartners' language development	E. Kim, S. Montrul, J. Yoon: The on-line processing of Binding Principles A and B in L2 acquisition: Evidence from eye tracking	P. Li: Another turn on the acquisition of spatial frames of reference terms
12:30	E. Bergelson, D. Swingley: Mother's education predicts spoken word recognition in 6-16-mo.-old infants	Y. Wang: The L2 processing of anaphora resolution under movement	S. Lee-Ellis, S. Hoerner, J. Lidz: Initial parsing bias in the perception of spatial relations by bilinguals

SOCIETY FOR LANGUAGE DEVELOPMENT 7th ANNUAL SYMPOSIUM (Metcalf Large)
Cognition and Language

2:30	Introductory Remarks
3:00	Noam Chomsky (MIT)
4:00	Break
4:15	Charles R. Gallistel (Rutgers University)
5:15	General Discussion
6:00	**RECEPTION (Ziskind Lounge)**

ALTERNATES

N. Ferjan Ramirez, A. Lieberman, R. Mayberry	The first words acquired by adolescent first-language learners: When late looks early
C. Jackson, M. O'Brien, C. Gardner	Prosodic cues to syntactic disambiguation in second language German
A. Mitchel, M. Christiansen, D. Weiss	Cross-modal effects in statistical learning: Evidence from the McGurk illusion
N. Dijkstra, P. Fikkert	Universal constraints on the discrimination of Place of Articulation? Asymmetries in the discrimination of 'paan' and 'taan' by 6-month-old Dutch infants
S. Unsworth, I. Tsimpli	Bilingual acquisition of Greek voice morphology and Dutch gender: what do they have in common?
A. Theakston	Differences in children's and adults' choice of referring expressions as a function of sentence role, accessibility, and ambiguity.
A. Belikova	Do L2ers adopt the pronoun misanalysis of *se*? Data from Russian- and English-speaking L2 learners of French
A. Santos, I. Duarte, A. Pires, J. Rothman	Early inflected infinitives and late V-to-C movement
T. Hasley	Examining the semantics-pragmatics interface: The implications of implicatures
R. van de Vijver, D. Baer-Henney	Acquisition of voicing and vowel alternations in German

Friday, November 5
Terrace Lounge
Posters will be attended from 3:00 PM - 4:15 PM and from 9:15 PM - 10:00 PM

Authors	Title
X. Yang	Young Chinese children's CP and left periphery: The case of sentence final particles
A. Weisleder, A. Fernald	Streams of talk: Child-directed speech, but not overheard speech, predicts infants' vocabulary and language processing efficiency
K. Sugisaki	The distinction between case-markers and postpositions in early child Japanese: New evidence for children's grammatical conservatism
N. Ward, M. Sundara, B. Conboy, P. Kuhl	Short-term exposure to a second language produces language-specific effects in babbling
Y. Kim, M. Sundara	The role of function words in the development of word segmentation
A. Nadig, S. Ozonoff	Discourse context affects homonym interpretation similarly for children with high-functioning autism and typically developing children: an eye-tracking study
P. Cheung, P. Li, D. Barner	Are classifiers necessary for individuation in Mandarin Chinese?: A study on the acquisition of units of quantification
A. Ferry, S. Hespos, S. Waxman	Tuning the link between words and categories: Primate vocalizations facilitate object categorization in 3-month-old, but not 12-month-old infants
M. Lippeveld, Y. Oshima-Takane	The dax is daxing the cheese: When do children acquire class extension rules for denominal verbs?
T. Medina, A. Hafri, J. Trueswell, L. Gleitman	Propose but verify: Fast mapping meets cross-situational learning
E. Zaretsky, C. Core	Developmental sensitivity to the sublexical structure of the word: Evidence from a longitudinal study of early spelling attempts
E. Nava, J. Tepperman	Modeling second language prosody acquisition: A dynamic systems theory approach
J. Grinstead, M. Vega-Mendoza, G. Goodall	Subject-verb inversion and verb finiteness are independent in Spanish
N. Ferjan Ramirez, A. Lieberman, R. Mayberry	The first words acquired by adolescent first-language learners: When late looks early
C. Jackson, M. O'Brien, C. Gardner	Prosodic cues to syntactic disambiguation in second language German

POSTER SESSION I

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<tr><td>Y. Choi, H. Lee, N. Jang, A. Kaufman</td><td>Whose report is more certain?: The development of evidential reasoning</td></tr>
<tr><td>S. Kirby</td><td>Move over, control freaks: Syntactic raising as a cognitive default</td></tr>
<tr><td>G. Van Berkel, A. Fernald, V. Marchman</td><td>Word frequency influences speed of lexical access in 2-year-olds</td></tr>
<tr><td>J. Willits, J. Saffran</td><td>Adults and infants use meaning to learn about non-adjacent structure in language</td></tr>
<tr><td>H. Koulidobrova</td><td>Transfer past the surface: Evidence from null subjects in the speech of an ASL/English bilingual</td></tr>
<tr><td>L. Jiang, E. Haryu</td><td>Young Chinese-speaking children's understanding of the correspondence between verb meaning and argument structure</td></tr>
<tr><td>J. Bogdanovs, J. Fletcher, D. Bayliss</td><td>What contributes to reading comprehension? Differences between typically developing children and children with reading difficulties</td></tr>
<tr><td>J. Hoover, H. Storkel</td><td>Neighborhood density and the ruse in SLI</td></tr>
<tr><td>E. Tenenbaum</td><td>Typically developing infants attend to the mouth in conversational interactions</td></tr>
<tr><td>D. Simeone, D. Sobel</td><td>Children's understanding of reliability across linguistic domains</td></tr>
<tr><td>G. Bencini</td><td>Lexical, conceptual, and syntactic influences on syntactic priming in monolingual and bilingual English speakers</td></tr>
<tr><td>D. McDaniel, C. McKee, M. Garrett</td><td>Fluency Markers for children's sentence planning: Early and late stage processing</td></tr>
<tr><td>A. White, R. Baier, J. Lidz</td><td>When knowledge causes failure: Effects of subcategorization frequency in novel word learning</td></tr>
<tr><td>I. Eigsti, A. de Marchena, J. Dixon</td><td>Conversational gestures in autism spectrum disorders: A qualitative difference</td></tr>
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<tr><td>A. Mitchel, M. Christiansen, D. Weiss</td><td>Cross-modal effects in statistical learning: Evidence from the McGurk illusion</td></tr>
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Saturday, November 6 *Terrace Lounge* Posters will be attended from 3:15 PM - 4:30 PM and from 7:00 PM - 7:45 PM	

Authors	Title
T. Marinis	Non-word repetition in successive bilingual children: similar or different pattern from monolingual children with SLI?
C. Junge	On-line evidence of early word familiarization in nine-month-olds
E. Wonnacott, J. Boyd, J. Thomson, A. Goldberg	The acquisition of novel constructional patterns by five-year-olds and adults
T. Bagetti, L. Correa	The early recognition of verb affixes: evidence from Portuguese
H. Katz, J. Trueswell	Seeing, saying, and remembering: Children's understanding of discourse constraints on choice of referential expressions
H. Goad, L. White, J. Bruhn de Garavito	Prosodic transfer at different levels of structure: The L2 acquisition of Spanish plurals
L. Tornyova, V. Valian	A hypothesis testing model of question formation: Evidence from auxiliary omission and inversion
A. Gagliardi, J. Lidz	When Bayes betrays: How linguistic hypotheses shape learning biases
D. Hufnagle, L. Holt	Development of adult-like speech categorization in 3- and 5-year olds
E. Leddon, S. Arunachalam, X. Fu, H. Gong, L. Wang, S. Waxman	Noun and verb learning in English- and Mandarin-acquiring 24-month-olds
L. Naigles, C. Reynolds, A. Kuntay	2-year-olds' sensitivity to pronoun case in English sentence comprehension
M. Khan, J. Snedeker	Spontaneous implicit naming of visual objects
A. Eilam, J. Trueswell	Rapid acquisition of expletive negation in Modern Hebrew
N. Dijkstra, P. Fikkert	Universal constraints on the discrimination of Place of Articulation? Asymmetries in the discrimination of 'paan' and 'taan' by 6-month-old Dutch infants

Saturday, November 6 *Ziskind Lounge* Posters will be attended from 3:15 PM - 4:30 PM and from 7:00 PM - 7:45 PM (Terrace Lounge)	

Authors	Title
C. Branchini, C. Benetti, E. Carravieri, F. Arosio	Structure building and syntactic movement in Italian SLI children
N. Mani	Forming word-word relationships in infancy
F. Chang, T. Kobayashi	Mapping between particles and intentionality in Japanese preferential looking
G. Cannizzaro, P. Hendriks	When animacy trumps word order: (eye) tracking a comprehension delay in English-speaking preschoolers
D. Apoussidou	Modeling the acquisition of speech segmentation bottom-up and top-down
A. Grimm, M. Wojtecka, A. Ritter, P. Schulz	Comprehension of exhaustive wh-questions in early L2 and L1 learners of German -- cross-linguistically uniform or language-specific acquisition?
M. Iraola Azpiroz, M. Ezeizabarrena Segurola	Anaphora resolution in the acquisition of Basque
C. Cantiani, M. Lorusso, P. Perego, M. Guasti	ERP correlates of anomalous morphosyntactic processing in adults and children with Developmental Dyslexia
S. Hoerner, W. Idsardi, N. Jiang	Highly proficient Spanish-dominant bilinguals demonstrate sensitivity to difficult English vowel contrasts
J. Rothman, J. Cabrelli Amaro, G. Campos	L3 Initial State Models on trial: Subject-to-subject raising across experiencers in L3 Portuguese and Spanish
R. Bion, A. Fernald	Perceptual adaptation to foreign-accented speech in 18-month-old infants
J. Davidson, I. de la Fuente, R. Foote, S. Montrul	Early language experience facilitates gender processing in Spanish heritage speakers
A. Seery, V. Vogel-Farley, T. Augenstein, L. Casner, L. Kasparian, H. Tager-Flusberg, C. Nelson	Atypical electrophysiological lateralization to speech stimuli in infants at risk for autism spectrum disorder
M. Hughes, S. Allen	The contribution of grammatical and discourse-pragmatic effects to the acquisition of referential choice in child English
C. Coughlin, A. Tremblay	The role of prosodic boundaries in non-native speech segmentation
A. Delcenserie, F. Genesee, T. Grüter	Acquisition of object clitics and working memory in internationally-adopted children from China
S. Unsworth, I. Tsimpli	Bilingual acquisition of Greek voice morphology and Dutch gender: what do they have in common?
A. Theakston	Differences in children's and adults' choice of referring expressions as a function of sentence role, accessibility, and ambiguity.
A. Santos, I. Duarte, A. Pires, J. Rothman	Early inflected infinitives and late V-to-C movement
R. van de Vijver, D. Baer-Henney	Acquisition of voicing and vowel alternations in German
E. Kapia	Discourse-pragmatics effects in the acquisition of clitic-doubling

Session A--Metcalf Small

Stored chunks and generalized representations: The case of the English dative alternation

Erin Conwell, Harvard University
Timothy O'Donnell, Harvard University
Jesse Snedeker, Harvard University

To acquire the English dative alternation, learners must detect the relationship between the two forms, but also restrict the alternation to a subset of dative verbs. Novel verb experiments suggest that children master the prepositional dative first, but corpus work shows earlier acquisition of the double-object form. Our corpus analysis finds that, although double-object datives are more frequent, prepositional datives tend to have full NPs in the first post-verbal position, suggesting greater argument diversity for prepositional datives. A hierarchical Bayesian model trained on the corpus data stores high-frequency dative verbs with personal pronouns and an open theme slot (e.g., give me X) but also produces a verb-general prepositional dative structure (verb theme to recipient). Given a novel verb, the model prefers prepositional over double-object structure at a rate of 7.5:1. These results resolve the discrepancy between corpus studies and novel verb studies of the dative alternation.

Session B--East Balcony

The role of word-stress and intonation for word recognition in Dutch 14- and 24-month-olds

Paula Fikkert, Radboud University Nijmegen
Aoju Chen, Max Planck Institute for Psycholinguistics

This paper aims to disentangle children's developing perceptual knowledge of wordstress and intonation and their roles in word recognition. We tested 86 14- and 92 24-month-old infants in looking-while-listening paradigms, in which we tested the role of mispronunciations of word stress and intonation in word recognition. Results show that words are recognised better in statements than in questions. Second, there is a clear age effect: the 14-month-olds look longer to the correctly stressed words than to the incorrectly stressed words. This suggests that the segmental information of the word is not yet solidly represented. In contrast, the 24-month-olds looked longer to misstressed iambs, indicating that unlike the 14-month-olds they recognize words based on segmental material. Incorrect intonation does not influence word recognition, indicating that children develop knowledge of intonation and word-stress independently.

Session C--Conference Auditorium

Transfer in L2 and L3 acquisition of generic interpretation

Tania Ionin, University of Illinois - Urbana-Champaign
Silvina Montrul, University of Illinois - Urbana-Champaign
Helade Santos, University of Illinois - Urbana-Champaign

This study uses Acceptability Judgment Tasks in English, Spanish and Brazilian Portuguese (BrP) to test learners' and native speakers' interpretation of plural NPs in generic contexts. English uses bare (article-less) plurals, rather than definite plurals, for kind/generic interpretation (e.g., '(#The) dodo birds are extinct'). Spanish does exactly the opposite, while BrP exceptionally allows both bare and definite plurals with generic readings. The study results indicate that (1) L1-English L2-Spanish learners successfully overcame L1-transfer, and allowed definite plurals, but not bare plurals, in Spanish to have generic/kind readings; and (2) L1-English L2-Spanish L3-BrP learners treated BrP exactly like Spanish, allowing kind/generic readings for definite plurals only, even though BrP, like English, also allows kind/generic readings for bare plurals. These results are discussed in light of different theories of L3-acquisition, and it is argued that (perceived) structural similarity (in this case, between Spanish and BrP) plays a crucial role in L3-acquisition.

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Session A--Metcalf Small

Building and using partial knowledge
in statistical word learning

Daniel Yurovsky, Indiana University
Damian Fricker, Indiana University
Chen Yu, Indiana University
Linda Smith, Indiana University

While we sometimes have a tendency to characterize word learning as all-or-none, both in our methodology and our assessment of vocabulary size, we have long known that learning the meaning of a word is a gradual process of reorganizing both lexical and conceptual space. Through a set of cross-situational learning experiments, we systematically investigated the role of partial knowledge in statistical word learning. Participants were exposed to two consecutive blocks, the second containing words and objects for which they had formed incorrect mappings in block 1. Learning rates were significantly higher compared to a control condition, demonstrating the benefit of partially-learned word-object mappings. We then compared three computational models to determine which best explained how learners used partial knowledge to acquire new words. The role of partial knowledge appears to be an interactive one, with sub-threshold knowledge of individual word-object mappings used jointly to learn the whole system of mappings.

Session B--East Balcony

Processing of French liaisons in 24-month-old infants

Mireille Babineau, University of Quebec - Montreal
Rushen Shi, University of Quebec - Montreal

French liaisons constitute an ideal case for testing the syllable-integrity constraint on statistical segmentation. Liaisons occur when an underlying coda of certain frequent liaison-causing words surfaces phonetically as the syllabic onset of a following vowel-initial word (e.g., "*des amis*" – [de zami], "*un ami*" – [õ̃ nami]). We examined French-learning toddlers' interpretation of liaisons using a preferential looking procedure. Familiarization sentences contained non-words in variable liaisons supporting the vowel-initial parsing statistically. Test stimuli were the vowel-initial target versus a vowel-initial non-target (statistical parse), or a consonant-initial surfaced form from familiarization versus a consonant-initial non-target (syllable-integrity parse). Twenty-month-olds showed a syllable-integrity bias against statistical parsing. Twenty-four-month-olds succeeded in parsing the subsyllabic units (statistical parsing). In subsequent experiments, 24-30-month-olds still showed no consonant-initial interpretation following familiarization with one-liaison context (*ces onches*), suggesting that after the underlying representations of familiar liaison-causing words are established, this knowledge then guides infants' parsing of newly encountered vowel-initial words.

Notes

Session C--Conference Auditorium

What drives children's development of definite determiners

Nadya Modyanova, Massachusetts Institute of Technology
Alexandra Perovic, University of California - Los Angeles
Christopher Hirsch, Massachusetts Institute of Technology
Ken Wexler, Massachusetts Institute of Technology

We investigated whether children's knowledge of determiners correlates with computational/syntactic or pragmatic aspects of language. Children ages 3-9 years completed tasks of comprehension of determiners 'the' and 'that', actional (AP) and psychological/subjectexperiencer passives (PP), reflexive (NR) and personal pronouns (Principle B) (NP), nonverbal reasoning, vocabulary, and grammar. We find strong association between knowledge of PP and 'the'. Knowledge of NP is ahead of 'the'. In 4-5s, poor knowledge of articles is associated with normal scores on grammar and vocabulary, but adult-like article knowledge is associated with above-normal scores. In 6-9s poor article knowledge associates with low grammar scores but normal vocabulary scores. IQ played no consistent role. These results suggest that the acquisition of the semantic principle of maximality in definite determiner 'the' develops on par with such late-developing aspects of syntax as A-chains/Phases, is independent of pragmatics/working memory in acquisition of personal pronouns, and is strongly associated with overall grammatical development.

Session A--Metcalf Small

Elimination of unpredictable linguistic variation through iterated learning

Kenny Smith, Northumbria University
Elizabeth Wonnacott, University of Oxford

Variation in language tends to be predictable. Experimental studies (e.g. Hudson Kam & Newport, 2005, 2009) show that, given a language in which two forms are in free variation, adult learners *probability match* (produce each variant according to its frequency in the input), whereas children are more likely to regularize, suggesting that unpredictable variation is absent from language because it cannot be acquired by children. We show that iterated learning with adult learners can produce linguistically-conditioned stable variability. Individual adult participants trained on a semi-artificial language exhibiting unpredictable variation in plural marking appear to probability match. However, in simple populations (iterated learning chains: the language produced by participant *n* is used to train participant *n*+1) variability becomes *predictable:* choice of plural marker becomes conditioned on the noun being marked. These results demonstrate that adult learners have a relatively weak bias against unpredictable variation, which nonetheless becomes apparent through iterated learning.

Session B--East Balcony

Intonation of early answers to confirmation-seeking questions in spontaneous speech

Ana Isabel Mata, University of Lisbon
Ana Lucia Santos, University of Lisbon

The analysis of question-answer pairs in a corpus of child-adult interaction in European Portuguese offers evidence that at least from 2;0 the intonation patterns of children's verbal responses varies according to the discourse context and signals early sensitivity to the pragmatic interpretation of the input. 232 examples of one word affirmative answers given by two children (1;7.6-2;6.19 and 1;6.18-2;8.9) to confirmation-seeking yes-no questions uttered by adults were analyzed. Results show that after 2;0 there is a general increase of low/falling pitch accents (PA) and falling boundary tones, which we interpret as a convergence with the intonation expected in declaratives. These results also call for an analysis of answers by subtypes of questions' function: F0 height (F0 maxima within PA) and low/falling vs. high/rising PA (low/falling - (H+) L*; high/rising - (L+)H*, L*+H) correlate with neutral/non-neutral acceptance in "understanding" confirmation-questions.

Session C--Conference Auditorium

Production and processing of determiners in Turkish-Dutch child L2 learners

Nada Vasic, University of Amsterdam
Elma Blom, University of Amsterdam

We examine production and processing of definite and indefinite determiners in L2 Dutch children with Turkish L1. We find that, in production, children erroneously omit and substitute determiners in all contexts. We focus on omissions and examine whether they result from a lack of grammatical knowledge of features or performance problems related to the use of these features in on-line production. We therefore compare production with processing data. If the omission errors in production reflect a grammatical deficit, we expect L2 children to make no distinction between ungrammatical contexts with determiner omitted versus grammatical contexts with determiner present. We test this hypothesis using the Self-Paced-Listening paradigm with the same cohort of children. Our results show that children who omit determiners in production, detect omission errors in comprehension. Their knowledge of determiners is thus intact. We postulate that the omission errors in production are related to performance factors affecting the spell-outs.

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Session A--Metcalf Small

Where are the cookies? 3-year-olds use number-marked verbs to anticipate noun-number in online sentence interpretation

Cynthia Lukyanenko, University of Illinois - Urbana-Champaign
Cynthia Fisher, University of Illinois - Urbana-Champaign

Children, like adults, interpret sentences incrementally, making provisional commitments about interpretation based on partial information. For example, 3-year-olds use gender-marked articles to anticipate which of two pictures is being labeled (in Spanish; Lew-Williams & Fernald, 2007). We asked whether 3-year-olds use subject-verb agreement similarly. Children saw two pictures, contrasting in number (one apple, two cookies), accompanied by a sentence either with (There are the good cookies!) or without (Look at the good cookies!) informative verb agreement preceding the target noun. Children looked more quickly toward the target picture when they heard a sentence with an informative number-marked verb, suggesting that they used verb number agreement to predict grammatical properties of the upcoming noun. This finding yields new evidence of developmental continuity in basic mechanisms of sentence processing. Upon encountering each word, children rapidly integrate it into a syntactic structure, and compute semantic consequences of that structure in the referential context.

Session B--East Balcony

Semantic verb classes and the retreat from overgeneralization errors

Julien Pine, University of Liverpool
Ben Ambridge, University of Liverpool
Caroline Rowland, University of Liverpool

A central issue in acquisition research is how children learn to retreat from overgeneralization errors (**The joke giggled Lisa*), whilst retaining the capacity to produce novel utterances. Whilst many authors advocate a role for surface-based distributional learning (e.g., entrenchment), the role of verb semantics is less well understood. In the present study, adults and children aged 5-6 (M=5;9) aged 9-10 (M=9;9) were taught novel verbs whose semantics were consistent with (a) an intransitive-only class (emotional expression) or (b) an alternating class (manner of motion). All verbs were presented in intransitive sentences only during training and no definitions were given. At test, participants rated transitive and (novel) intransitive uses of each novel verb, using a 5-point scale. At all ages, participants significantly preferred intransitive over transitive uses of the novel semantically-intransitive-only verb (p<0.05 in all cases), but not the novel semantically-alternating verb (p>0.2 in all cases). Results are discussed in the context of a new theoretical account of the retreat from overgeneralization that yields both semantic and statistical effects.

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Session C--Conference Auditorium

Comprehension of center-embedded and right-branching relative clauses by Russian-speaking children with language impairment

Natalia Rakhlin, Yale University
Sergey Kornilov, University of Connecticut - Storrs
Maria Babyonyshev, Yale University

Object-gap relative clauses (RC) are known to be harder than subject-gap RCs for language-impaired (LI) children (van der Lely, 1994). One theory relates this observation to a greater processing load of the object trace being kept in memory longer than the subject trace (Gibson, 2000); another theory posits children's inability to deal with wh-movement involving a "crossing dependency" (Friedman et al., 2009). We investigated comprehension of centerembedded (CE) and right-branching (RB) RCs by Russian-speaking children. We found the TD group significantly more accurate on the subject-gap CE and object-gap RB than the object-gap CE condition. The LI group showed no significant preference for the subject-gap over object-gap RCs, but had significantly fewer errors in the object-gap RB compared with the CE conditions. Interestingly, the interaction between condition and group status disappeared when digit span was entered into the model highlighting the role of memory resources in RC processing by LI children.

Session A--Metcalf Small

Using verb information to escape from kindergarten-paths in English and Japanese wh-questions

Akira Omaki, University of Maryland - College Park
Imogen Davidson White, University of Maryland - College Park
Takuya Goro, Ibaraki University
Jeffrey Lidz, University of Maryland - College Park
Colin Phillips, University of Maryland - College Park

Studies on English PP-attachment ambiguities (e.g., *put the frog on the napkin in the box*) demonstrate that children incrementally resolve ambiguities like adults, but that they have great difficulty in revising their incremental structural analyses (e.g., Trueswell et al., 1999). Here, we explore the limits of children's reanalysis abilities, using English and Japanese bi-clausal wh-questions, which allow us to test the incrementality of wh-attachment and effectiveness of different reanalysis cues. In three Question-after-Story experiments, we show that a) children generally attach a fronted wh-phrase to the first verb regardless of the canonical word order of the language, b) fail to revise this initial analysis in response to syntactic revision cues (i.e., a novel 'kindergarten-path effect'), but c) successfully entertain an alternative analysis in response to verb-based cues, indicating that verb semantics has a privileged status in children's syntactic reanalysis decisions. Implications for models of child reanalysis mechanism will be discussed.

Session B--East Balcony

Comprehension of intransitive argument structure: The first-noun-as-agent bias

Claire Noble, University of Manchester
Anna Theakston, University of Manchester
Elena Lieven, University of Manchester

Evidence suggests that English-learning children are unable to associate conjoined agent intransitives (e.g. "the bunny and the duck are glorping") with non-causal events before the age of 3 (e.g. Yuan & Fisher, 2009). There is some controversy whether this is due to their misaligning the number of noun phrases and semantic roles in the construction (e.g. Lidz et al., 2003) or due to a bias to interpret first named nouns as causal agents, based on analogies to other constructions in the input (e.g. Chang et al., 2006). This study uses a pointing methodology to tease apart these two possible explanations. The results suggest that a) young children may have a bias to interpret first named nouns as causal agents possibly based on analogies to other constructions in the input, and b) they do not rely exclusively on the number of noun phrases to assign semantic roles in conjoined agent intransitives.

Session C--Conference Auditorium

Early usage patterns of DO in multiple functions in children with and without Specific Language Impairment

Megan Blossom, University of Kansas
Mabel Rice, University of Kansas

This study examines children's usage of forms of the word DO in spontaneous language samples from 89 children, 37 with Specific Language Impairment (5-5.5 years old), 37 age-equivalent control children, and 15 language-equivalent control children (2.5-4.8 years old). Auxiliary DO has been proposed as a potential clinical marker for SLI. DO, however, has multiple functions which have received minimal attention in previous work on the early language abilities of children with and without SLI. This study documents children's affirmative DO uses across multiple functions. Children with SLI showed lower levels of accuracy for auxiliary DO use in questions compared to both control groups, concurrent with high levels of accuracy on forms of DO where the DO carries semantic as well as syntactic information. Implications for our understanding of the nature of the grammatical deficit in SLI will be discussed.

Notes

Session A--Metcalf Small

Where does verb bias come from? Experience with particular verbs affects online sentence processing

Zhenghan Qi, University of Illinois - Urbana-Champaign
Sylvia Yuan, University of California - Berkeley
Cynthia Fisher, University of Illinois - Urbana-Champaign

Verbs' probabilistic subcategorization biases affect sentence processing in adults and children (Snedeker & Trueswell, 2004). The present study asked where verb bias comes from. In particular, is verb bias influenced by the statistics of language experience? Five year-olds watched training dialogues in which 8 familiar equi-bias verbs appeared in sentences including "with" prepositional phrases. Discourse context in the dialogues strongly promoted instrument interpretations for half of the verbs and modifier interpretations for the other half. In later test trials, children followed instructions containing ambiguous "with"-PPs (e.g., "Pinch the cow with the barrette"). Children's eye-movements during the test sentences revealed effects of training. Children who were tested on instrument-trained verbs looked reliably more at instruments, and less at the target animal, than did children who were tested on modifier-trained verbs. Thus, hearing familiar verbs combined with clear instrument- or modifier-PPs influenced 5-year-olds' later incremental interpretation of sentences containing the same verbs.

Session B--East Balcony

When throwing is not catching: children's understanding of intentionality of transfer verbs

Nina Kazanina, University of Bristol
Sarah Baker, University of Bristol
Bruce Hood, University of Bristol
Hayley Seddon, University of Bristol

We investigated children's understanding of sentences with verbs of caused motion, e.g., *Bill threw/sent a book to Ann*. Unlike other transfer verbs (e.g., *give/sell*)*, throw/send* encodes intentionality and does not entail that the transferred entity successfully reached its intended destination; hence, *throw/send*-sentences can describe 'incomplete' events in which Bill threw the book to Ann but Ann didn't catch it. Our findings indicate that English 3-5 year olds have a non-adultlike understanding of *throw/send*: they impose a successful transfer requirement and reject 'Bill threw/sent a book to Ann' with incomplete events. The error wasn't due to their inability to represent the agent's unfulfilled intention, as they did accept control *want-to* sentences ('Bill wanted to throw/send a book to Ann') with incomplete events. We interpret our findings as reflecting the child's initial bias to form verb meanings on the basis of the state of affairs in the actual world (de Villiers, 2005).

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Session C--Conference Auditorium

Subject verb agreement in Specific Language Impairment: A study of monolingual and bilingual German-speaking children

Harald Clahsen, University of Essex
Solveig Chilla, University of Erfurt
Monika Rothweiler, University of Bremen

This study investigates phenomena that have been claimed to be indicative of Specific Language Impairment (SLI) in German, focusing on subject-verb-agreement marking. Longitudinal data from 14 German-speaking children with SLI, seven monolingual and seven Turkish-German successive bilingual children, were examined. We found similar patterns of impairment in the two participant groups. Both the monolingual and the bilingual children with SLI had correct (present vs. preterit) tense marking and produced syntactically complex sentences such as embedded clauses and wh questions, but were limited in reliably producing correct agreement-marked verb forms. These contrasts indicate that agreement marking is impaired in German-speaking children with SLI, without any necessary concurrent deficits in either the CP-domain or in tense marking. Our results also show that it is possible to identify SLI from an early successive bilingual child's performance in one of her two languages.

Session A--Metcalf Small

Isolated words enhance statistical learning by 9-month-old infants

Casey Lew-Williams, University of Wisconsin - Madison
Bruna Pelucchi, University of Ferrara and University of Wisconsin - Madison
Jenny Saffran, University of Wisconsin - Madison

When exposed to continuous speech with no pause-defined cues to word boundaries, infants find words by noting which syllables occur together consistently. But caregivers sometimes utter words in isolation, often repeated from an adjacent sentence (*See the doggie over there? Doggie!*). Do isolated words offer a shortcut for segmentation, such that infants do not need to track transitional probabilities in natural speech? Alternatively, perhaps the presence of isolated words facilitates the detection of TPs in fluent speech. We tested English-learning infants' abilities to track high- and low-TP words in natural Italian speech that either did or did not contain isolated words. Listening times revealed that isolated words and longer utterances acted in concert to facilitate word segmentation: infants integrated information gained from hearing words in isolation with statistical information available in fluent speech. This investigation brings research on statistical learning closer to the natural variation observed in infant-directed speech.

Session B--East Balcony

Patterns of style in the language of African American children and adolescents

Jennifer Renn, University of North Carolina - Chapel Hill

The dearth of research on style shifting in African American English (AAE) during the early lifespan has left a number of unanswered questions related to the acquisition of and the ability to shift speech styles. To address these issues, this paper compares formal and informal language data from African American speakers collected at three temporal data points to compare linguistic behavior throughout elementary and middle school. Language samples were analyzed in terms of 42 AAE features to determine the overall difference in dialect use across time and situation. Analyses suggest that while there is a range of individual variation in early style shifting, speakers progressively engage in an overall expansion of style shifting over time. Further investigation of the influence of five social, personal, and demographic factors indicates that while certain factors are significantly related to style shifting, the influence of others is instead associated with speakers' overall dialect use.

Session C--Conference Auditorium

(A)symmetries in the production and on-line comprehension of articles and clitics by Turkish-Greek L2 children: Same or different from monolingual Greek children with SLI?

Vasiliki Chondrogianni, University of Reading
Theodoros Marinis, University of Reading
Susan Edwards, University of Reading

The present study examines whether or not the similar profile in the production of articles and clitic pronouns between L2 children and children with SLI reflects similar underlying grammatical representations. Twenty-six Greek L2 children were compared with 15 age- and language-matched Greek children with SLI and 27 typically-developing age-matched controls on the production and on-line comprehension of articles and clitics. Results showed that L2 children omitted significantly more articles and clitics than L1 children and children with SLI, but they were sensitive to the ungrammaticality induced by article and clitic omission in the comprehension task. The children with SLI produced more clitics than the L2 children, but fewer than the typically-developing L1 controls and were insensitive to the ungrammaticality induced by clitic omission in real-time. We conclude that the previously observed similarity between L2 children and children with SLI disappears when more sensitive on-line sentence processing tasks are employed.

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Session A--Metcalf Small

Visual sequence learning in infancy: A domain-general predictor of vocabulary ability

Carissa L. Shafto, University of Louisville
Christopher M. Conway, St. Louis University
Suzanne L. Field, Indiana University School of Medicine
Derek M. Houston, Indiana University School of Medicine

Research suggests that non-linguistic sequence learning abilities are an important contributor to language development (Conway, Bauernschmidt, Huang, & Pisoni, 2010). The current study investigated visual sequence learning as a possible predictor of vocabulary development in infants. Fifty-eight 8.5-month-old infants were presented with a three-location spatiotemporal sequence of multi-colored geometric shapes. Early language skills were assessed using the MacArthur-Bates CDI. Analyses of children's reaction times to the stimuli suggest that while not all children learned the spatiotemporal sequence, the extent to which they did demonstrate learning was significantly correlated with their language comprehension abilities at the same time point and 5 months later. This suggests that domain-general cognitive processes, specifically sequence learning, may partially explain individual differences in language outcomes in infants.

Session B--East Balcony

When input matters, and when it don't: Acquisition of variable input by English-speaking children

Karen Miller, Pennsylvania State University

Guasti & Rizzi (2002) report that the absence of agreement on interrogative 'do' in child English (e.g. *Do she go?*) is unattested, a finding, which they argue, motivates a structure where tense and agreement features are licensed in distinct syntactic positions, with agreement higher than tense. Radford (1991), however, reports that, while rare, these forms do exist and suggests their occurrence may be related to the use of *don't* in nonstandard forms of adult English (e.g. *She don't want to go*), which may cause the learner to miscategorize 'do' as a modal, base-generated under finite T, where tense is higher than agreement. Here we present evidence that children exposed to nonstandard forms of English have misanalyzed 'do' as a modal, which we argue is due to the variable nature of the input. Moreover, we show that production of agreement morphology does not guarantee that children can use it in comprehension.

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Session C--Conference Auditorium

Greek-speaking children with Specific Language Impairment (SLI) do not omit clitics

Sofia Manika, Utrecht University
Spyridoula Varlokosta, University of Athens
Kenneth Wexler, Massachusetts Institute of Technology

Object clitics are not uniformly acquired across languages; French, Italian, and Catalan-speaking TD children show late acquisition of clitics, omission and a preference for using full DPs in contrast to Spanish-, Romanian- and Greek-speaking ones. This variation has been explained through the Optional Clitic stage (Wexler 2003), which results from the interaction of a universal developmental constraint, the Unique Checking Constraint (Wexler, 2000), with syntactic properties of particular languages. Given that children with SLI follow the same but delayed path to language acquisition as their TD peers (Rice et al., 1995), they are subject to UCC for a prolonged period (Wexler 2003). The results of our elicitation task, the first experimental test of clitic omission in Greek SLI, show ceiling performance in clitic production and give support to UCC and theories in which the impairment lies in the computational system rather than in a phonological deficit.

Session A--Metcalf Small

Is statistical learning affected by perceptual reorganization? Dutch infants' sensitivity to lexical tone discrimination

Liquan Liu, University of Utrecht
Rene Kager, University of Utrecht

Infants can track distributional information from the ambient speech input and experience perceptual reorganization (PR) in the first year of life, while the relationship between the two mechanisms remains unknown. The current study explores statistical learning (SL) of lexical tones in infants. It is unclear whether non-tone-language-learning infants can discriminate tonal contrasts if provided with the 'right' type of distributional input. The research questions are: 1) Does SL facilitate infants' discrimination of a non-native tonal contrast? 2) Is this ability affected by tonal PR? 3) When does tonal PR occur? Five-, eleven-, and fourteen-month old Dutch infants were tested on their perception of a tonal contrast in Mandarin Chinese under uni/bi-modal distributions. Results show that SL influences infants' discrimination of the non-native tonal contrast, whereas the influence diminishes before the onset and possibly after the offset of tonal PR. The relationship between the current findings and previous studies is discussed.

Session B--East Balcony

Grammatical gender in L2: Where is the problem?

Theres Gruter, Stanford University
Casey Lew-Williams, University of Wisconsin - Madison
Anne Fernald, Stanford University

Grammatical gender is difficult to master in an L2. Yet both the *extent* and *nature* of this difficulty remain a matter of debate. Here we explore the *extent* of the problem by assessing grammatical gender in production, offline comprehension and online processing in highly proficient L2 learners of Spanish (L1 English) and native Spanish-speaking controls. Both groups performed at ceiling in offline comprehension, but not production, where accuracy was at ceiling in the L1 but not the L2 group. Eye-tracking data indicate that only the L1 group was sensitive to gender cues when processing *familiar* nouns online, yet both groups appeared to take advantage of gender cues when processing newly learned *novel* nouns. To capture the *nature* of the observed L1-L2 differences, we propose differences at the level of lexical representations, in particular weaker gender-noun associations in the L2 lexicon as a result of L1-L2 differences in word learning.

Session C--Conference Auditorium

Creating hierarchical structure: Do noun phrases appear in homesign?

Dea Hunsicker, University of Chicago
Susan Goldin-Meadow, University of Chicago

Homesigners, profoundly deaf children of hearing adults who have not been exposed to sign language, refer to entities by pointing at the entity (a demonstrative, *that*), or by producing an iconic gesture evoking some aspect of the entity (a noun, *bird*). We ask whether these two types of gestures are combined to form a larger unit, akin to a noun phrase (*that bird*). Using data from of a homesigner called David (ages 2;10-5;02), we found that he did combine point+iconic gestures. These gesture combinations served the same semantic functions, and occupied the same syntactic positions, in David's homesigns as point and iconic gestures used on their own. The larger unit substituted for the smaller unit, functioning as an NP. Children are thus able to refer to entities using phrase-like units, even without access to a conventional language to provide a model for hierarchical structure of this type.

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Session A--Metcalf Small

Infants' processing of prosody predicts toddlers' grammatical vocabulary

Alejandrina Cristia, Laboratoire de Sciences Cognitives et Psycholinguistique
Amanda Seidl, Purdue University

Infants take their first steps in language acquisition in the domain of prosody, preferring their native language on the basis of prosody at birth, and beginning to recognize prosodic units in running speech only a few months later. Several current theoretical models propose that sensitivity to prosody aids infants' discovery both of words' grammatical categories and of syntactic structures. Despite its potentially crucial role, sensitivity to prosody has not yet been directly tied to later morphosyntactic development. In the present longitudinal study, we document a positive correlation between 37 infants' processing of prosody at 6 months and the proportion of function words found in their lexicon at 18 months. No such correlations were found with the children's parental education or a measure of cognitive skills taken in infancy. These results provide the first longitudinal confirmation to theories that link early sensitivity to prosody with later lexical and syntactic development.

Session B--East Balcony

Online comprehension of newly acquired nouns and abstract knowledge of grammatical gender

Andréane Melançon, University of Quebec - Montreal
Rushen Shi, University of Quebec - Montreal

Previous studies showed that 2-3-year-olds learning grammatical gender languages use gender-marked determiners for online comprehension of familiar nouns (Johnson, 2005; Lew-Williams & Fernald 2007; Van Heugten & Shi, 2009). Does this ability reflect abstract, generalized grammatical knowledge or simply prior experience with specific NPs? We tested this question using novel words during a wordlearning task. In a split-screen procedure, French-learning 24- and 30-month-olds were familiarized with non-words paired with unfamiliar objects, one feminine (marked by a preceding feminine indefinite determiner: "*une*FEM *ravole*"), and another masculine "*un*MASC *cagère*". Test trials presented both objects with speech naming one of them. In Grammatical Trials, target words were preceded by a definite determiner of the same gender as the familiarization determiner (e.g., *le*MASC *cagère*). Ungrammatical Trials named the targets with a definite determiner of incorrect gender (e.g., *la*FEM *cagère*). Infants looked longer at the targets in Grammatical Trials, demonstrating abstract knowledge of gender agreement.

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Session C--Conference Auditorium

The development of eye gaze control for linguistic input in deaf children

Amy Lieberman, University of California - San Diego
Marla Hatrak, University of California - San Diego
Rachel Mayberry, University of California - San Diego

Deaf children interacting through sign language must learn to shift eye gaze between people and things in order to perceive relevant input. How do children develop this sophisticated management of visual attention? We analyzed the eye gaze behavior of four deaf children (ages 2 to 3.5 years) while engaged in book reading episodes with their deaf mothers. We examined children's locus of gaze, number of gaze shifts, and factors that motivated such shifts. Our results revealed that deaf children are constantly monitoring and responding to the dynamic features of interaction. Children shifted gaze with high frequency, responded to maternal cues, and alternated attention at appropriate times. There was a high association between the number of gaze shifts and vocabulary score. Our findings suggest that the development of eye gaze control is a cognitive skill that deaf children must acquire through interaction with other signers, and that this skill develops in conjunction with the acquisition of language.

Session A--Metcalf Small

Phonemic discrimination at word-initial, word-medial, and word-final positions with and without lexical pitch-accent in Japanese

Reiko Mazuka, Duke University
Yuko Sogabe, RIKEN Brain Science Institute

Young infants' ability to discriminate phonemic contrasts is dependent on where the specific contrast is positioned. We examined the positional effect for infants' sensitivity to phonemic contrasts using a vowel quality contrast /a/ vs. /i/ in Japanese. Japanese infants at 4-months can discriminate the contrast in an accented syllable at a word-initial position in "MA'na" vs. "MI'na". But it was not until 6 months that they could discriminate it the first unaccented syllable, such as "maNA" vs "miNA". At 8 months, they became able to discriminate between word-final high-pitch syllables such as "maNA" vs "maNI." Also at 8 months it became possible to discriminate between accented syllables in median position such as "maNAno" vs "maNIno." At 10 months, they had become able to discriminate between medial unaccented syllables as "maNANO" vs "maNINO." The present results suggest that pitch-accent must have a function of perceptually highlighting the syllable for infants.

Session B--East Balcony

The representation of subject-verb agreement in French-learning toddlers: New evidence from the comprehension of an infrequent pattern of pseudoverbs

Isabelle Barriere, City University of New York - Brooklyn College
Louise Goyet, University of Paris V
Thierry Nazzi, University of Paris V
Sarah Kresh, City University of New York Graduate Center
Geraldine Legendre, Johns Hopkins University

The nature of morphosyntactic representations entertained by toddlers is much debated. With respect to subject verb agreement, 30-month-old French toddlers succeed in matching a verbal stimulus that involves a single phonologically non-salient cue and familiar verbs that start with a vowel (e.g. *il-SING-ariv* vs *ilz-PLUR-ariv*), which are used in less than 3% of utterances in the input. The present study further investigated the nature of toddlers' subject-verb agreement by testing the comprehension of stimuli that involve pseudoverbs. Twenty four 30-month-olds participated in the experiment. The stimuli involved the third person singular (*il*) or plural (*ilz*) subject clitic followed by vowel-initial pseudoverbs. The children match the verbal stimuli to the appropriate visual stimuli 61.21 % of the time, which is significantly above chance (p=.003, 2-tailed t-test). This finding challenges constructivist hypotheses and it is better explained by acquisition theories that propose that toddlers are equipped with abstract morphosyntactic representations.

Session C--Conference Auditorium

A language with polycomponential vocabulary: Issues of linguistic typology and the analysis of ASL vocabulary development

Marlon Kuntze, Boston University
Cynthia Goodman, Boston University
Naomi Berlove, Tufts University
Sarah Fish, Boston University
Kate Mesh, Boston University

A study on ASL vocabulary development cannot be complete without taking morphologically complex signs into consideration. The strategy of focusing on the root morpheme of the word in the analysis of vocabulary development in other morphologically rich languages cannot work for ASL because many signs are composed of all bound morphemes with no identifiable root. To reveal the true depth of ASL vocabulary development, we need a new methodology that takes these problems into account. We use a relatively new transcription system – the Berkeley Transcription System (BTS; Slobin et al., 2001) – that accurately conveys the detail in morphologically complex signs. Analysis of the 800 morphologically complex tokens in our current database yields information on both frequency and form of different components in BTS as well as provides an insight on how to plot out the combinatory patterns of those components across individual signs and how they may change developmentally.

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Nurture and biology in language acquisition:
What the hands say

Rachel Mayberry
University of California at San Diego

Most of our knowledge about language acquisition is derived from the ideal case. The infant who hears and overhears language spoken in and out of the home is the classic language learner that scientists model. Sign language research shows the degree to which language development is abstract and independent of sensory-motor modality. Crucially, sign language research can also reveal the extent to which the timing of linguistic input during early life affects its outcome. This is because the circumstances of sign language acquisition vary enormously from the ideal case, especially with respect to the age onset of language development. Here I discuss psycholinguistic, neuroimaging, and case studies of sign language acquisition designed to probe the critical period for language. The results provide insights into the origins of complex language in the individual.

POSTER SESSION I

Young Chinese children's CP and left periphery: The case of sentence final particles

Xiaolu Yang, Tsinghua University

Compared with IP and DP, the functional category node CP in the left periphery is the most elusive in children's early language production. The present study is an attempt to investigate the left periphery, i.e. the CP domain, in early child Chinese, in light of the recent split-CP analysis (Rizzi 1997), with a focus on sentence final particles. It is argued in Li (2006) that each of the sentence final particles, i.e. NE, MA, BA, and A, heads a functional projection in the left periphery and that this function is a core function underlying various uses of the same particle. Two Chinese-speaking children's longitudinal production data before two years of age were examined. The distribution and use of these particles in the data suggests that Chinese children possess knowledge of the left periphery as early as before two and they may have a full-fledged CP structure from the start.

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POSTER SESSION I

Streams of talk: Child-directed speech, but not overheard speech, predicts infants' vocabulary and language processing efficiency

Adriana Weisleder, Stanford University
Anne Fernald, Stanford University

Children hear speech from many different sources. Yet most studies of early language experience have focused on the influence of child-directed speech on language learning, without exploring the possible contributions of other streams of talk overheard by the child. Here we ask how the relative amounts of exposure to child-directed and overheard speech are related to infant's vocabulary and skill in real-time language processing. We recorded the language environments of Spanish-learning 18-month-olds (n=20) over a typical 12-hour day in the home. Consistent with earlier findings, the total amount of child-directed speech was significantly related to children's vocabulary size and speechprocessing efficiency. However, amount of overheard speech was not related to language outcomes. These results suggest that talk directed to the child is essential for building vocabulary and speech-processing efficiency, while overheard speech appears to be less relevant to the development of these critical skills.

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The distinction between case-markers and postpositions in early child Japanese: New evidence for children's grammatical conservatism

Koji Sugisaki, Mie University

In Japanese, NPs are immediately followed by postpositional particles. Despite the similarity in their surface distributions, these particles are divided into two subclasses: Case-markers and postpositions. This study addresses the question of whether Japanese-learning two-year-olds can make this distinction, by examining children's knowledge of the co-occurrence restriction between (i) Case-markers and (ii) the topic marker wa or the focus particle mo 'also'. The results from the analysis of two longitudinal corpora for Japanese from CHILDES were as follows: Both children frequently produced Noun + Case-marker and Noun + postposition sequences. However, while the latter sequence was accompanied by wa/mo reasonably often, the former was never followed by these elements. The absence of co-mission errors in which Case-markers are followed by wa/mo not only suggests that children distinguish between Case-markers and postpositions from the earliest observable stage, but also provides a new piece of evidence for children's Grammatical Conservatism (Snyder 2007).

Notes	POSTER SESSION I

Short-term exposure to a second language produces language-specific effects in babbling

Nancy Ward, University of California - Los Angeles
Megha Sundara, University of California - Los Angeles
Barbara Conboy, University of Washington
Patricia Kuhl, University of Washington

Little is known about when infants' speech production shows language-specific characteristics and how exposure to a second language affects production. In this study, we examined babbling from monolingual English-learning infants to determine whether short-term exposure to Spanish is sufficient to alter its prosody and segmental characteristics. We analyzed speech samples from English-learning 12-month-old infants who were exposed to Spanish for 5 hours over 4-5 weeks (12 25-minute sessions). Following this exposure, infants participated in two half-hour recording sessions: one with an English-speaking parent, and the other with a Spanish-speaking research assistant. Babbling utterances were analyzed for syllable type, prosodic properties, and vowel formants. Consistent with the phonetic properties of Spanish, infants exposed to Spanish for just 5-hours produced longer and more multi-syllabic utterances while babbling with Spanishspeaking interlocutors. Results will be discussed in terms of the impact of exposure to a second language and early bilingualism.

The role of function words in the development of word segmentation

Yun Jung Kim, University of California - Los Angeles
Megha Sundara, University of California - Los Angeles

Before 8-months, English-learning infants can segment consonant-initial words using bottom-up prosodic cues (Jusczyk & Aslin, 1995) or top-down cues like familiar content words (Bortfeld et al., 2005). However, their ability to segment vowel-initial words does not appear till 13.5-16-months (Mattys & Juszcyk, 2001; Nazzi et al., 2005). Using the Headturn Preference Procedure, we tested whether monolingual English-learning 11- and 8.5-month-olds' ability to segment vowel-initial words was facilitated when these words followed the familiar function word *the*. The familiar function word *the* facilitated segmentation for 11- [$t(15) = 4.204$, $p = .0004$], but not 8.5-months-olds, [$t(10) = 0.685$, p = 0.254]. Thus, unlike in previous studies (Shi et al., 2006), an imprecise representation of function words observed in 8.5-month-olds was not sufficient to allow them to segment in a challenging condition – when vowel-initial words appear in the middle of a sentence in connected speech.

Discourse context affects homonym interpretation similarly for children with high-functioning autism and typically developing children: An eye-tracking study

Aparna Nadig, McGill University
Sally Ozonoff, University of California - Davis

We examined lexical ambiguity resolution in a looking-while-listening paradigm where a context sentence was provided to facilitate the interpretation of homonyms (e.g. cell). Participants were 17 children with high-functioning autism and 19 typically-developing comparisons matched on language level and age. They heard context sentences that biased towards one meaning (prison meaning of "cell" rather than biological meaning) and were then shown displays containing both versions of the homonym. Finally they heard "cell" and were asked to pick the picture that went best with what they had heard. Based on previous findings, the HFA group was predicted to rely less on context and to demonstrate problems inhibiting competing meanings. However the groups did not differ in accuracy or response time to choose a target referent, and both groups displayed similar frequency effects (dominant meanings were easier to process than subordinate ones). Subtle differences found in eyetracking patterns will be discussed.

Notes

Are classifiers necessary for individuation in Mandarin Chinese?: A study on the acquisition of units of quantification

Pierina Cheung, University of Waterloo
Peggy Li, Harvard University
David Barner, University of California - San Diego

In English, count nouns act as "sortals" and determine what constitutes a unit of quantification. By some accounts, nouns in mass-count languages like English can denote sortals, but those in classifier languages like Mandarin Chinese cannot. Previous studies show that, unlike adults, English-speaking preschoolers incorrectly identify units of quantification, counting one fork cut into three as "three forks." This behavior may be explained by a prelinguistic tendency to treat discrete physical objects as units prior to learning how units are identified by nouns. Related to this, if bare nouns in Mandarin are unspecified with respect to what constitutes a unit, then Mandarin speakers should behave like English-speaking preschoolers, treating cut pieces as units. Contrary to this prediction, Mandarin-speaking adults did not treat cut pieces as units, although younger Mandarin-speaking children did. These data indicate that Mandarin nouns, like their English counterparts, are sortals and provide criteria of individuation.

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Tuning the link between words and categories: Primate vocalizations facilitate object categorization in 3-month-old, but not 12-month-old infants

Alissa Ferry, Northwestern University
Susan Hespos, Northwestern University
Sandra Waxman, Northwestern University

Recent research demonstrates that labeling a series of objects with a common label can help infants as young as 3 months form the object category. However, the mechanisms underlying this early link between labels and object categories are not well understood. The goal of the current research is to explore how infants begin mapping words to object categories and how this process develops throughout the first year. The current study examined the influence of primate calls, backwards speech, and filtered speech on object categorization in 3- to 12-month-old infants. The results demonstrate that at 3- and 4-months, a range of auditory stimuli can facilitate object categorization. By 6 and 12 months only forward labeling phrases can guide categorization. These studies suggest that precursors to word learning are evident at an early age and word learning may be built upon broadly-tuned mechanisms that later become specific to language and individual words.

The dax is daxing the cheese: When do children acquire class extension rules for denominal verbs?

Marie Lippeveld, McGill University
Yuriko Oshima-Takane, McGill University

The present study investigated whether 2- and 3-year-old French-speaking children have acquired class extension rules for denominal verbs using an Intermodal Preferential Looking Paradigm. Eighteen French-speaking 2-year-olds and 18 French-speaking 3-year-olds watched a video which taught them three novel parent nouns referring to three unfamiliar object sets (one practice set). After being taught each novel parent noun, they were tested on their understanding of both the noun and its denominal verb. The results indicated that both the 2- and the 3-year-olds were able to extend the novel parent nouns to a new instance of the same kind. However, only the 3-year-olds were able to understand the denominal verbs. These results provide the first experimental evidence that 3-year-olds are able to understand denominal verbs when they know the meaning of their novel parent nouns. This suggests that by 3 years of age, children have acquired class extension rules for denominal verbs.

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Propose but verify: Fast mapping meets cross-situational learning

Tamara Medina, University of Pennsylvania
Alon Hafri, University of Pennsylvania
John Trueswell, University of Pennsylvania
Lila Gleitman, University of Pennsylvania

We propose a cross-situational word learning procedure in which only a single hypothesized word-referent pairing (but no alternative hypotheses) is retained across learning instances, given up only when a subsequent instance fails to confirm the pairing – more like a "fast mapping" procedure (Carey & Bartlett, 1978) than a statistical one (e.g., Yu & Smith, 2007; Frank, Goodman, & Tenenbaum, 2009). In Experiments 1 and 2, participants 'word mappings on each trial (via mouse-clicking) and looking times (via eye-tracking) revealed that when initial guesses were correct, participants stuck to them. When first-trial choices were incorrect, the effect was devastating for learning: participants did not profit from co-occurrence information on later trials. Experiment 3 showed that learners' incorrect first hypotheses became less catastrophic when a two-day delay was introduced between learning instances, thereby giving learners a second "first" encounter. The time interval between observations allowed participants to do one-trial word learning anew.

Developmental sensitivity to the sublexical structure of the word: Evidence from a longitudinal study of early spelling attempts

Elena Zaretsky, University of Massachusetts - Amherst
Cynthia Core, George Washington University

While early reading development enjoys a robust line of research, less is known about the developmental trajectory of spelling. This project examines the developmental trajectory of early spelling during kindergarten year to examine the level of sensitivity to the sublexical structure of the word. While researchers agree that segmenting words into phonemic units requires an intermediate subsyllabic level, there is a difference of opinions regarding the nature of subsyllabic division, i.e., onset/rime or body/coda. The data on invented spelling task was collected at two entry points--the beginning and the end of kindergarten year--on 31 subjects. Our results indicate that children are aware of the subsyllabic structure of the word, but their early attempts are better classified as onset/coda with a gradual switch to onset/rime representation toward the end of the year. We postulate that a year of formal reading instructions allows children to apply more systematic phoneme/grapheme mapping.

Modeling second language prosody acquisition: A dynamic systems theory approach

Emily Nava, Rosetta Stone Labs
Joseph Tepperman, Rosetta Stone Labs

Research on L2 prosody has employed Flege's Speech Learning Model (1995) to account for varying degrees of success of rhythmic and/or phrasal prosodic pattern acquisition. The current work challenges this approach in two ways: a directionality of acquisition is proposed (acquisition of rhythmic patterns precedes acquisition of phrasal patterns), and a dynamic systems theory (DST) model is adopted to model the interaction between rhythmic and phrasal events as part of the acquisition process. Results from a series of experiments with an L1Spanish/L2English test population go beyond the similarity vs. difference hypothesis in demonstrating that outcomes in prosodic organization can be predicted from how a given pattern competes or cooperates with existing tendencies for organization. Additionally, data from the large speaker groups tested allow for a picture of the underlying structure of variability; this way reducing the entire language to a single number (common in L2 rhythm studies) is avoided.

Subject-verb inversion and verb finiteness are independent in Spanish

John Grinstead, Ohio State University
Mariana Vega-Mendoza, Ohio State University
Grant Goodall, University of California - San Diego

Because of its superficial similarity to the English Subject-Auxiliary Inversion (SAI) construction, early work in generative syntax assumed that Subject-Verb Inversion (SVI) in Spanish and other Southern Romance languages resulted from similar processes. However, there is evidence that finite verbs and wh- pronouns do not occur in a specifier-head configuration in wh- questions in Spanish. In this project, we carry out two experiments to determine whether a correlation of judgments in child Spanish supports a connection between finiteness and inversion, as Rizzi's (1996) framework predicts, or whether they are independent. Our results support the emerging consensus that the "Residual V2" properties found in Germanic languages do not obtain in Southern Romance and that the Wh- Criterion is not satisfied in a specifier-head configuration in Spanish.

The first words acquired by adolescent first-language learners: When late looks early

Naja Ferjan Ramirez, University of California - San Diego
Amy Lieberman, University of California - San Diego
Rachel Mayberry, University of California - San Diego

This study describes the initial ASL acquisition of three deaf 16-year-olds. These unique adolescents communicated with gestures prior to ASL immersion in adolescence. We studied their language after 12 to 24 months of acquisition using the CDI and detailed analyses of their spontaneous language production. The early vocabulary composition of adolescent L1 learners is remarkably similar to that of child L1 learners; moreover, syntactic development as measured by the MLU can be predicted from vocabulary size. Although initially faster than child learners, adolescent L1 learners show a tapering off uncharacteristic of the explosive lexical and MLU growth of child learners. Our data suggest that the initial stages of L1 acquisition are common to all L1 learning, irrespective of age. The subsequent slowing of acquisition was apparent for both lexical and morpho-syntactic development and may reflect maturational limits on first-language acquisition begun in adolescence.

Prosodic cues to syntactic disambiguation in second language German

Carrie N. Jackson, Pennsylvania State University
Mary Grantham O'Brien, University of Calgary
Christine E. Gardner, Pennsylvania State University

The present study investigated whether German native speakers and late L2 German learners (English L1; intermediate to advanced L2 proficiency) will use prosodic cues to disambiguate temporarily ambiguous sentences during a contextualized sentence production task. Unlike previous research showing that L2 learners may not use prosodic cues to signal meaningful contrasts during L2 speech production (e.g., Gut, 2009; Ramirez Verdugo, 2002), in the present study the L2 learners' performance paralleled that of German native speakers. An acoustic analysis of the data revealed that for both participant groups, the type of cue used (pauses vs. pitch excursion) – and the strength of the resulting boundary– varied according to syntactic boundary type (clausal vs. phrasal). Further, the L2 learners used a rise in pitch to disambiguate prepositional phrase-attachment sentences, even though previous studies have suggested this may not be a reliable cue to disambiguation in their L1 English (e.g., Snedeker & Trueswell, 2003).

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Early verb extension in Japanese-speaking children

Tessei Kobayashi, NTT Communication Science Laboratories
Yuriko Oshima-Takane, McGill University

The present study investigated from what age children are able to extend newly learned verbs to actions performed by a previously unseen agent. Using a habituation paradigm with a switch design, Japanese-speaking 14-, 18-, 20-, and 22-month-old children (N=128) were habituated to two intransitive actions (spinning and rocking) performed by a single agent (Experiment 1) or four different agents (Experiment 2) paired with two novel verbs before they were tested their ability to extend the verb to actions performed by a novel agent. Results indicated that children at all age groups failed in Experiment 1 while those at 20 and 22 months succeeded in Experiment 2. This finding suggests that, by 20 months of age, children can extend verb meaning when multiple agents are shown during the habituation phase and that viewing multiple exemplars is beneficial for early verb learning and extension when the task is not cognitively demanding.

Whose report is more certain?: The development of evidential reasoning

Youngon Choi, Chung-Ang University
Hwah-in Lee, Chung-Ang University
Na-young Jang, Chung-Ang University
Adam Kaufman, Skidmore College

The present study examined children's understanding of pragmatic functions of evidentials, particularly, when children begin to appreciate differing degree of certainty of information conveyed by evidentials (i.e., direct perception, inference, and hearsay). In a detective game, 3-6-year-old Korean and English children were asked to choose the more certain fact about thefts, based on the two statements offered by two witnesses (e.g., The thief stole chocolates-e (saw, direct perception) vs. The thief stole candies-tay (heard, hearsay), or vs. The thief stole-cookies-napoa (guessed, inference)). The two languages differ in their linguistic marking of information sources: Korean requires obligatory morphological marking of information sources (i.e., sentence-ending morphemes), English does not mandate such marking and information source is often marked lexically (e.g., verbs). While 5-year-old English-learning children were at chance, even 3-4-year-old Korean children chose 'seeing' over 'hearing' as a more reliable information source, however only when such information was marked lexically but not morphologically.

Move over, control freaks: Syntactic raising as a cognitive default

Susannah Kirby, University of British Columbia

I present evidence suggesting that raising analyses of syntactic structures are readily accessible in both developing and adult grammars. First, in a TVJ task testing raising-to-object and object control constructions with embedded active or passive clauses (Edgar wants/asks Zoey to [be] cuddle[d by] Suki), children ages 3-5 performed equally well or better on raising than on control items, suggesting that raising is cognitively simpler (and thus primary) for children. Additionally, in a sentence judgment task, adults occasionally accepted structures involving control verbs with expletive arguments (There refused to be 5 customers at the table/The babysitter urged it to be time for bed). This runs contrary to the claim that control verbs always s-select for their arguments, precluding their co-occurrence with expletives. These patterns suggest that raising structures are more basic (more economical, canonical, or somehow "default") than control structures, and I suggest the reasons for this lie in extralinguistic cognition.

Word frequency influences speed of lexical access in 2-year-olds

Grace Van Berkel, Stanford University
Anne Fernald, Stanford University
Virginia Marchman, Stanford University

A robust finding in psycholinguistic research with adults is that high-frequency words are accessed faster than low-frequency words. However, few studies have examined frequency effects in young language learners. This study explored how word frequency influences 30-month-olds' (*n*=32) speed of lexical access using the looking-while listening procedure, which yields real-time measures of speech processing comparable to those used with adults. Children were tested on high- and low-frequency *familiar words*, and exposed to *novel words* more or less frequently. Novel word learning was assessed both immediately and one week after exposure. When tested on *familiar words*, children were faster to identify high-frequency words than low frequency words. When tested on *novel words* one week after exposure, children with more frequent exposure processed the newly-learned words faster than those with less exposure. These findings reveal that children's developing fluency in comprehension is influenced by the amount of experience they have with particular words.

Adults and infants use meaning to learn about non-adjacent structure in language

Jon Willits, University of Wisconsin - Madison
Jenny Saffran, University of Wisconsin - Madison

A fundamental issue in language acquisition involves learning non-adjacent structure. One potential cue to learning about language's non-adjacent structure is semantic information, which is often correlated with linguistic structure and may bootstrap learning. We test whether language learners can use semantic information to learn about non-adjacent regularities in language in two experiments. Subjects heard a training corpus that had sentences with an AxB structure, where each A perfectly predicted each B. In the experimental condition, the A and B words shared a semantic relationship; in the control condition there was no semantic cue pointing learners towards the non-adjacent relationship. Both 2-year-old infants and adults were able to learn the non-adjacent structure in the experimental but not the control condition. These results suggest that non-adjacent structure in language is considerably easier to learn, if there are semantic cues pointing learners toward the regularities they need to learn.

Transfer past the surface: Evidence from null subjects in the speech of an ASL/English bilingual

Helen Koulidobrova, University of Connecticut

We investigate the nature of bilingual effects in the English of a balanced bimodal bilingual. The child's English exhibits influence of ASL in terms of subject omission. However, the current model of cross-linguistic transfer (Hulk & Müller 2000, Serratrice et al. 2004) does not account for the data. We advocate a code-switching model which both derives transfer effects and accounts for the findings. The model implies that since the child has access to two phonologies, s/he is simultaneously able to use two languages: the child can select lexical items from both lexicons; if all the relevant features are checked, the outcome of the derivation remains unconstrained by the Phonological Form requirements (MacSwan 2000, Liceras et al.2008). This creates a surface effect of cross-linguistic transfer. The findings amount to saying that in the environments where NS are found, Tom is code-blending (Emmorey et al 2008), i.e. using English and ASL simultaneously.

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Young Chinese-speaking children's understanding of the correspondence between verb meaning and argument structure

Lu Jiang, University of Tokyo
Etsuko Haryu, University of Tokyo

A non-causative verb typically appears in an intransitive sentence with a single argument while a causative verb appears in a transitive sentence involving two arguments. The present study examined whether young Chinese-speaking children can utilize this knowledge to infer the meaning of a novel verb. In order to examine this problem, we presented two-, three- and four-year-olds with a transitive or intransitive sentence while they watched two videos depicting a non-causative and a causative event, and asked them to choose one that matched the given sentence. The children from all age groups did not always map an intransitive sentence to a non-causative event, whereas they successfully mapped a transitive sentence to a causative event. The results suggest that Chinese children have difficulty in learning that a sentence with a single argument refers to a non-causative event, because of the pervasive ellipsis of arguments in Chinese.

What contributes to reading comprehension? Differences between typically developing children and children with reading difficulties

Jade Bogdanovs, The University of Western Australia
Janet Fletcher, The University of Western Australia
Donn Bayliss, The University of Western Australia

While skills such as Phonological Awareness (PA) are important for developing literacy, they may not be the most critical components in reading comprehension, especially later in literacy development. Working Memory (WM) may be involved in comprehension, with recent studies arguing that new "computer-paced" WM span tasks may provide a purer measure of WM capacity than traditional tasks. We investigated how PA, Rapid Automatised Naming, word decoding and WM (both new and traditional tasks) contributed to reading comprehension at two stages of development, and in children with reading difficulties. The contribution of decoding ability to reading comprehension was strongest in the younger competent readers. WM contributed to reading comprehension in all groups, although there were differences between groups as to which WM task made the greater contribution. Results suggest that there are differences between younger and older competent readers in which factors underlie reading comprehension, and that children with reading difficulties follow a distinct pathway in reading development.

Neighborhood density and the ruse in SLI

Jill Hoover, Indiana University
Holly Storkel, University of Kansas

This research examined neighborhood density effects on third person singular (3S) optional infinitives (OIs) in 20 English-speaking children with SLI. In Study 1, children were equally likely to use 3S OIs regardless of density in two production tasks. In Study 2, we used a single subject experimental design to induce density effects via massed exposure while examining change over time in 3S OIs for 3 children exposed to 3S with dense verbs and 3 with sparse verbs. Here, children in the sparse condition experienced a learning advantage over children in the dense condition. Thus, with limited opportunities to produce the 3S structure, density did not predict OIs, but OIs were differentially decreased over time with massed exposure to sparse verbs. Thus, reconciliation of the ruse lies in a delayed trajectory of density effects on OIs where massed exposure was key to revealing effects.

Typically developing infants attend to the mouth in conversational interactions

Elena Tenenbaum, Brown University

Using eye tracking, we examined fixations of 6, 9 and 12-month-olds watching videos of a woman speaking and/or gazing toward an object. Trials were systematically manipulated for information in the mouth (speaking vs. smiling) and eyes (gaze toward object vs. straight ahead). Overall, infants attended to the mouth more than the eyes, especially on speaking trials. Attention to the mouth increased between 6 and 12 months. We found comparable results in a replication intended to draw focus to the eyes by eliminating the redundant head turn. However, adults watching the same sets of stimuli focused primarily on the eyes. These findings add to growing evidence that avoidance of the eyes in infancy is not pathological but may instead be adaptive for language. By fixating the mouth, infants gain information about the correspondence between mouth shape and speech sounds. To explore this, we are collecting language outcome measures for these infants.

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Children's understanding of reliability
across linguistic domains

Deanna Simeone, Brown University
David Sobel, Brown University

This experiment investigated whether preschoolers use speaker reliability demonstrated in one linguistic domain to guide learning in an unrelated linguistic domain. Four-year-olds observed two confederates label objects reliably, one using correct grammar and one using incorrect grammar. During each test trial, the confederates labeled one novel object with different novel labels. Older 4-year-olds endorsed the reliable confederate's labels more often than chance, suggesting that they assumed the reliable grammar user would know the name of a novel object. Younger 4-year-olds responded at chance but were also less likely to identify the unreliable confederate. It is unclear whether they would have performed better on test trials had they understood the training. These results suggest that if 4-year-olds recognize a speaker as unreliable, they may assume that she is also unreliable in other linguistic domains.

Lexical, conceptual, and syntactic influences on syntactic priming in monolingual and bilingual English speakers

Giulia Bencini, City University of New York - Hunter College

We examine the relationship between syntactic, lexical, and conceptual processes in language production as a function of language experience, using a computerized spoken-to-written syntactic priming paradigm with speakers with different degrees of English experience: monolinguals, English-dominant bilinguals, balanced bilinguals, and non-English dominant bilinguals. We examined the role of conceptual features via an animacy manipulation for transitives and the role of lexical overlap via verb repetition for datives. For all language groups we found priming for transitives and datives, and enhanced priming with lexical repetition. The magnitude of priming was remarkably similar across levels of language experience, except for stylistically marked inanimate/inanimate passives, which reduced priming for all but L1-dominant speakers. Bilinguals achieve pragmatic as well as syntactic competence, but pragmatic competence lags behind syntactic competence. The overall similarity in the nature and magnitude of priming is most consistent with a shared syntax model of bilingual syntactic processing in production.

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Fluency Markers for children's sentence planning:
Early and late stage processing

Dana McDaniel, University of Southern Maine
Cecile McKee, University of Arizona
Merrill Garrett, University of Arizona

We compare two studies of sentence planning in children and adults. Our index of planning was patterns of non-fluency. The studies used the same relative clauses, but the first elicited sentences without modeling and the second used imitation. We found similar effects of structural complexity and similar patterns of unfilled pauses across experiments and age groups. Differences across age groups and experiments emerged in the distribution of filled pauses and restarts and in complementizer usage. These findings suggest that adults tend to plan the whole message before beginning an utterance, and they do little message-level planning for imitation. Young children, on the other hand, do message-level planning mid-utterance and are not as able to take advantage of a modeled utterance. Our overall conclusion is that the sentence planning process is similar in children and adults, but that adults are more able to do advance planning.

When knowledge causes failure: Effects of subcategorization frequency in novel word learning

Aaron White, University of Maryland - College Park
Rebecca Baier, University of Maryland - College Park
Jeffrey Lidz, University of Maryland - College Park

Lidz and Baier (2008) show that 19-month-olds are insensitive to the presence of the instrumental preposition 'with' in sentences with only one internal argument -- treating a novel noun marked by the preposition as referring to the patient. 19-month-olds are, however, sensitive to the 'with' when presented with sentences involving both patient and instrument NPs (Lidz and Baier 2009). The researchers argue that the initial insensitivity is the product of a predictive parsing bias in the selected verbs. For these verbs, by far the most frequent frame is one in which only a patient (unmarked) NP is present. The subsequent increase in sensitivity is argued to be a result of subcategorization frame prediction satisfaction. The current study provides more evidence for this hypothesis, showing that when access to canonical subcategorization frame information is withheld by presentation of a novel verb 19-month-olds are sensitive to the presence of the preposition.

Conversational gestures in autism spectrum disorders: A qualitative difference

Inge-Marie Eigsti, University of Connecticut - Storrs
Ashley de Marchena, University of Connecticut - Storrs
James Dixon, University of Connecticut - Storrs

Clinicians have long reported striking differences in the conversational gestures produced by individuals with autism spectrum disorders (ASD). Currently, the quantity and quality of co-speech gestures and their integration with speech form the basis of fully one-third of diagnostic items on major diagnostic measures (e.g., the ADOS). Surprisingly, the empirical literature is limited, and primarily focuses on declarative (attention-drawing) gestures in preschoolers. We report results of a series of studies of gesture in ASD that demonstrate that individuals with ASD gesture just as *frequently* as their peers; second, their gestures seem to *serve similar functions*, aiding lexical access and problem-solving; third, their gestures are *free of gross motor differences* or deficits; and fourth, characteristics of low-level movement organization or structure seem to capture important individual differences for gestures in ASD.

Teddy-bear blues: A comparison of color-matching in Farsi-, Turkish- and English-speaking three and four-year-olds

Debi Roberson, University of Essex
Ozge Ozturk, Max Planck Institute for Psycholinguistics
Shakila Shayan, Max Planck Institute for Psycholinguistics
Asifa Majid, Max Planck Institute for Psycholinguistics

Additional 'basic' color terms in the blue region are associated with differences in recognition memory, visual search and ERP signals in adult speakers of Russian (Paramei., 2005) Greek (Thierry et al., 2009) and Turkish (Özgen & Davies, 1998). At the same time, children's color-term acquisition is correlated with the variability of color-naming in their auditory environment (O'Hanlon & Roberson, 2006). Using a series of colors crossing the boundaries between dark- and light-blue categories in both Turkish (*Lacivart & Mavi*) and Farsi (*Suurmei & Aabi*), Turkish- and Farsi-speaking 3-4 year-olds showed selective language-specific 'Categorical Perception' of the range of blues shown, compared to English children. Adults in both communities confirmed through labelling and matching that the testing range covered both categories. Supporting Roberson et al. (2004), comprehension of the relevant terms appears to promote category use, even before children can use the terms productively.

Notes

Cross-modal effects in statistical learning: Evidence from the McGurk illusion

Aaron Mitchel, Pennsylvania State University
Morten Christiansen, Cornell University
Daniel Weiss, Pennsylvania State University

Statistical learning plays a vital role in language acquisition, yet it is not known whether it is guided by a unitary, modality-general mechanism, or by several sensory-specific mechanisms. Consistent with the latter view, Seitz et al (2007) tested learners with multimodal input and found that statistical learning in one modality is independent of input to other modalities. We tested this assertion of independence by presenting learners with speech streams synchronized with a video of a speaker's face. We used the McGurk illusion to manipulate the underlying statistical structure of the speech streams. Contrasting the independence hypothesis, our results suggest that participants integrated the audio and visual input to perceive the McGurk illusion during statistical learning, thereby altering the pattern of segmentation. We therefore conclude that auditory and visual inputs are not processed independently and discuss the implications of these findings for resolving the debate about the nature of statistical learning.

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POSTER SESSION I

Examining the semantics-pragmatics interface: The implications of implicatures

Travis Hasley, University of Iowa

The most recent instantiation of the Interface Hypothesis contends that external interfaces, as opposed to internal ones, are likely to result in *residual optionality* (Sorace and Serratrice 2009), for reasons related more an increased need for processing and attentional resources than deficiencies in linguistic representation itself (e.g. Wilson et al 2009; Sorace and Serratrice 2009). Recent studies at the syntax-pragmatics interface provide some evidence that residual optionality is not inevitable for external interfaces in L2A (e.g. Gürel 2006; Ivanov 2009; Rothman 2009), yet few studies at other external interfaces, for example, the semantics-pragmatics interface, have been realized. The present study investigates the acquisition of scalar implicatures in L2 Spanish. Data collected indicate a trend of improved performance with increased proficiency levels, some advanced and near-native learners have patterned exactly after native speakers, suggesting that the semantics-pragmatics interface is not impossible to overcome.

POSTER SESSION I

Do L2ers adopt the pronoun misanalysis of Se? Data from Russian- and English-speaking L2 learners of French

Alyona Belikova, McGill University

Several studies have concluded that L2ers do not generally internalize linguistically misleading rules. Following up on Belikova (2008), I examine L2-acquisition of the French clitic se in light of its classroom misrepresentation as a clitic pronoun. Belikova (2008) shows that Russian-speaking L2ers treat the reciprocal se and clitic pronouns differently. The present study tests L2ers on the reflexive se and introduces native English speakers as another L2-group. In an acceptability judgement test, while Russian speakers' performance is along the lines of Belikova (2008), English speakers exhibit a weaker contrast between se and clitic pronouns. An additional questionnaire reveals that about half of the participants remember the classroom generalization, but this does not affect their performance. Maintaining that L2-learners are insensitive to linguistically misleading rules, I discuss how the data are accounted for in terms of (residual) L1- transfer (while Russian employs overt reflexive morphology (similar to French), English uses null morphology).

Session A--Metcalf Small

Cross-linguistic distributional analyses with frequent frames: The cases of German and Turkish

Hao Wang, University of Southern California
Barbara Höhle, University of Potsdam
Nihan Ketrez, Istanbul Bilgi University
Aylin C. Kuntay, Koc University
Toben H. Mintz, University of Southern California

Syntactic categories (e.g., noun and verb) are the building blocks of grammar. Lexical categorization is thus critical for acquiring syntax. Distributional information from lexical cooccurrence patterns has been shown to be a powerful categorization cue. Frequent frames, a particular distributional context, are informative cues in English, French, Chinese and Spanish– languages with relatively constrained word orders. Languages with freer word order and richer morphology pose particular problems for linear-based distributional analyses. This study analyzes word- and morpheme-level frequent frames in German and Turkish child-directed speech. We found that frequent morpheme frames are accurate categorization contexts, and are overall more informative than frequent word frames and other distributional contexts. Thus, this study provides new cross-linguistic evidence of the viability of distributional information in early grammatical category acquisition in languages with freer word order and richer morphology. Whether children could initially use frequent morpheme frames to categorize words is also discussed.

Session B--East Balcony

Quantifier spreading is not distributive

Barbara Zurer Pearson, University of Massachusetts - Amherst
Thomas Roeper, University of Massachusetts - Amherst
Margaret Grace, University of Massachusetts - Amherst

Many studies have sought to explain the phenomenon of quantifier spreading in sentences like "Is every girl riding a bike?" In classic spreading, children reject a picture with every girl riding a bike, unless every bike is also being ridden. Thus, spreading appears to entail distributivity. In this study, we separated distributivity and spreading. Thirty-two children, ages 6;1 to 8;11, matched sets of vases with different numbers of flowers (from 0 to 3 per vase) to the statements "Every (or each) flower is in a vase." Explanations of the choices in the children's own words spread the quantifier to the distant noun, for example, "[it's] the only one with flowers in every vase." Eighty-eight percent of the children spread but did not require distributivity and some specifically rejected it, even for "each." We argue, therefore, that spreading and distributivity are distinct and explore how their acquisition paths are related.

Session C--Conference Auditorium

Children's 2Aux negative questions: Parameter-setting or the lexicon?

Ting Xu, University of Connecticut - Storrs

In elicited-production studies of English negative questions (e.g. *What don't you like?/What do you not like?*), children often produce questions (e.g.*What do you don't like?*) with an extra auxiliary (Guasti et al., 1995; Hiramatsu, 2003). Guasti et al. (1995) propose that the '2Aux' error stems from a missed parameter, which predicts that children will produce 2Aux sentences in the context of sentential negation. Hiramatsu (2003) instead argues the 2Aux error results from a misanalysis of the contracted form *-n't*, which predicts that children's 2Aux sentences all involve constituent rather than sentential negation. This study evaluates these two analyses by eliciting negative questions with *can* from sixteen 3- to 4-year old English-learning children under both sentential and constituent negation. The results are incompatible with Hiramatsu (2003), but consistent with Guasti et al. (1995): Children produced almost no 2Aux error for constituent-negation questions but a number of 2Aux errors for sentential-negation questions.

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Session A--Metcalf Small

You can stipe the pig and nerk the fork:
Learning to use verbs to predict nouns

Sylvia Yuan, University of California - Berkeley
Cynthia Fisher, University of Illinois - Urbana-Champaign
Padmapriya Kandhadai, University of British Columbia
Anne Fernald, Stanford University

Children use verbs to predict nouns. For example, toddlers more quickly comprehend nouns preceded by semantically-related rather than unrelated verbs ("eat/take the cookie"). We asked whether 2-year-olds can learn these predictive relationships through listening experience, without already knowing the verb's meaning. In a listening phase, 26-month-olds heard two novel transitive verbs. One verb always preceded direct objects naming animals (…*stipe the bunny*); the other verb preceded direct objects naming household objects (…*nerk the bottle*). In test trials, children saw pictures of a new animal and household object, and heard prompts such as *Which one can you nerk?*. Children looked longer at the target picture appropriate for the verb. Thus, 26-month-olds learned to link an unknown verb with a semantic category based on the distribution of nouns following that verb. This yields new evidence of toddlers' ability to learn useful distributional facts about unknown verbs, even without an informative referential context.

Session B--East Balcony

Children's collective and distributive interpretations of pluralities with number

Kristen Syrett, Rutgers University - New Brunswick
Julien Musolino, Rutgers University - New Brunswick

We demonstrate that a key semantic property of numerically quantified expressions- that they denote a plurality with a part-whole structure-is in place early in acquisition. A sentence such as *Two boys pushed a car* has a *collective* and a *distributive* interpretation (van der Berg, 1994; Dowty, 1986; Link, 1983, 1987). On the *collective* interpretation, the pushing event is atomic: two boys (*a* and *b*) pushed a car together ($\exists y(car(y) \wedge push((a \oplus b), y))$). On the *distributive* interpretation, there are multiple events: two boys each pushed a car ($^D(\lambda x[\exists y(car(y) \wedge push(x,y))])(a \oplus b)$). We presented live-action videos to participants and asked them to assess the truth of pre-recorded sentences. Three- and four-year-olds accessed both interpretations. However, in a separate task, children displayed a preference patten opposite that of adults, choosing the distributive context. The results of a close procedure with adults suggest that patterns in the input may be responsible for this shift over time.

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Session C--Conference Auditorium

Subject RC-over-object RC advantages in L2
processing of Japanese

Masahiro Hara, Truman State University

This self-paced reading study aimed at determining whether structural depth or linear distance underlies difficulty with L2 real-time processing of relative clauses (RCs) in Japanese. Because aa RC in Japanese precedes its head noun (HN), the impact of structural depth on difficulty with RC processing is distinguishable from that of linear distance. The study included advanced learners (24 L1 Korean and 27 L1 English) and 26 NSs of Japanese. The participants read four versions of RCs that crossed subject vs. object relativization and nominative vs. accusative case-marking on the head noun (HN). Subject RC-over-object RC advantages in online processing were found at the HN for Korean learners and at the matrix verb for NSs of Japanese. English learners' reading of those regions was numerically (but not significantly) faster in the subject than in the object RCs. The findings point to structural depth (not linear distance) as a factor determining difficulty with L2 processing of Japanese RCs.

Session A--Metcalf Small

Verb learning from syntax alone at 21 months

Sudha Arunachalam, Northwestern University
Emily Escovar, Northwestern University
Melissa Hansen, Northwestern University
Sandra Waxman, Northwestern University

Recent work has shown that by 27 months of age, toddlers establish a novel verb's meaning from its syntactic context alone, even if no relevant visual scene is available. Here, we advance this finding by demonstrating the same ability in 21-montholds. Toddlers first heard novel verbs in either transitive or intransitive sentences, but absent a relevant visual scene. Next they viewed two candidate scenes: two actors engaged in 1) a causative action, and 2) synchronous actions. Toddlers heard: "Where's *mooping*?"; their eye gaze was recorded. Within 2.5 sec of the verb's onset, toddlers who had heard transitive sentences reliably preferred to look at the causative scene. These results 1) provide the first evidence that 21-month-olds establish a representation of a novel verb's meaning from syntax alone, and 2) establish the time-course with which they process the novel verb and assign its referent when candidate scenes become available.

Session B--East Balcony

Acquiring the ordering of Italian near-synonymous quantifiers

Ruggero Montalto, University of Groningen
Angeliek van Hout, University of Groningen
Petra Hendriks, University of Groningen

We investigate whether Italian native speakers and Italian learners can order the quantifiers of their language on a magnitude scale. We look at three low-magnitude (*alcuni*, *pochi*, *qualche*) and three high-magnitude quantifiers (*molti*, *parecchi*, *tanti*) in their cardinal interpretation (cf. de Swart, 1998). Dictionaries of Italian (e.g. Dardano & Trifone, 1997) suggest that these quantifiers refer to different magnitudes, which would not only justify their co-existence in the language, but should also make scalar ordering possible. In two experiments 96 adults and 16 five-year-old children took a magnitude comparison task. The results showed a developmental difference in so-called "synonymous" quantifiers, which we explain by suggesting that children apply the Principle of Contrast (Clark, 1987) to quantifiers.

Session C--Conference Auditorium

Morphosyntactic cues impact filler-gap dependency resolution in 20- and 30-month-olds

Jeffrey Lidz, University of Maryland - College Park
Annie Gagliardi, University of Maryland - College Park

Prior work (Gagliardi, Mease, Lidz 2010) found in a preferential-looking study that 20- month-olds can accurately interpret both subject and object wh-questions, but were unable to interpret relative clauses of either type. In this paper, we show that 20-month-olds reveal a fragile sensitivity to morphosyntactic features of the filler in resolving filler-gap dependencies, succeeding with *wh*-relatives but not *that*-relatives. We also show that 30-month-olds are more robust in that they are not influenced by the form of the filler.

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Session A--Metcalf Small

Explaining the disambiguation effect in lexical development: New evidence favoring constraints over social-pragmatic knowledge

Patricia Brosseau-Liard, University of British Columbia
D. Geoffrey Hall, University of British Columbia

What mechanism underlies the disambiguation effect (i.e., learners' tendency to select an unfamiliar over a familiar object as a novel word's referent)? A social-pragmatic account suggests that it reflects reasoning about the referential intentions of speakers who use novel words. A constraints account posits that it reflects default assumptions limiting novel words' possible meanings. Three- and 4-year-olds saw a familiar object visible from both the child's and the experimenter's perspective, and a second object (familiar in the Control Condition, unfamiliar in the Experimental Condition) visible only to the child. The experimenter, who could see only the familiar object, repeatedly labelled it with a novel word. When asked to choose the word's referent, children selected the familiar object in the Control Condition, but were more likely to choose the hidden unfamiliar object in the Experimental Condition. The results favour a constraints account over a social-pragmatic account of the disambiguation effect.

Session B--East Balcony

Implicit learning and dyslexia: Non-adjacent dependency learning in infants with a familial risk of dyslexia

Annemarie Kerkhoff, University of Utrecht
Elise de Bree, University of Utrecht
Eline van Baal, University of Utrecht
Frank Wijnen, University of Utrecht

Dyslexia is identified by difficulties in reading and spelling, but wider language and cognitive difficulties are seen in dyslexics and children at risk of dyslexia. We hypothesize that the deficit underlying these difficulties is associated with implicit sequential learning, affecting language acquisition and other forms of procedural learning. The present study asks if children with a familial risk of dyslexia can track non-adjacent dependencies in an artificial language. 18-month-old at-risk and low-risk control infants were exposed to novel languages containing non-adjacent dependencies of the type A-X-B, C-X-D where A and B and C and D always co-occur. During testing, infants listened to trained (A-X-B, C-X-D) and untrained strings (in which the A-B and C-D dependency was absent). While controls showed a novelty preference, at-risk infants did not discriminate between the two types of strings. This finding is taken to support the hypothesis that a deficit in implicit sequence learning underlies developmental dyslexia.

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Session C--Conference Auditorium

What seems to be real may be illusory: Acquisition of raising with an experiencer

Jinsun Choe, University of Hawaii - Manoa

The acquisition of raising structure has been controversial, with some claiming that children find them difficult (e.g., Hirsch & Wexler, 2007) and others claiming that children can comprehend them (e.g., Becker, 2006). This study identifies crucial methodological flaws in previous research and investigates children's comprehension of raising structures with an experiencer, with the following corrections: 1) a false illusion is created for the experiencer to properly motivate *seem* and 2) an alternative experiencer is added to create contextual contrast. Sixteen native English-speaking children were tested in a truth-value judgment task (Crain & McKee 1985, Crain & Thorton 1998). The results showed that children performed well on the *unraised* condition, while their performance on the *raised* condition was at chance level. Therefore, this study suggests that young children have difficulty in comprehending raising structures with an experiencer.

Session A--Metcalf Small

Zip Code as a predictor of toddlers' use of the mutual exclusivity strategy

Anne Fernald, Stanford University
Nereyda Hurtado, Stanford University
Ricardo Bion, Stanford University
Virginia Marchman, Stanford University

Emergence of the mutual-exclusivity (ME) effect is tracked in diverse populations, high-SES monolingual English-learning children, and low-SES monolingual Spanish-learning children. Using online-processing measures, *Study 1* explored how the ME strategy relates to vocabulary in English-learners. On novel-word-trials, 14-month-olds performed at chance, although 16- and 18-month-olds advanced in vocabulary showed the ME effect. *Study 2* tested English- and Spanish-learners at 18 and 24-months. On novel-word-trials, English-speaking 24-month-olds favored the novel object, as did high-vocabulary 18-month-olds. However, Spanish-learning children did not show the ME effect by 24-months, with performance unrelated to vocabulary. *Study 3* found that low-SES 24-30-month-olds were also at chance on traditional offline-testing methods. Although the ME effect emerged with the 'vocabulary spurt' around 18-months in high- SES infants, low-SES 24-to-30-month-olds producing >250 words did *not* yet show this strategy in interpreting novel names. We argue that SES-differences in children's early language experience influence their developing skill in inferential word learning.

Session B--East Balcony

The story behind parent-child book-reading interactions: Relations to later language and reading outcomes

Ozlem Ece Demir, University of Chicago
Lauren Applebaum, University of Chicago
Susan C. Levine,University of Chicago
Katherine Petty, University of Chicago
Susan Goldin-Meadow, University of Chicago

Despite the widespread emphasis on shared parent-child book-reading interactions, empirical evidence supporting the link to later oral language and reading performance is weak. We observed naturalistic parent-child book-reading interactions when children were 30-months-old. We examined the frequency and nature of the parent input, and its relations to later oral language and reading outcomes. We categorized utterances produced during the interactions (book-talk) into 4 categories: text reading, picture descriptions, story discussions, and print features. Children were given the Peabody Picture Vocabulary Test at 54-months, and three reading subtests from Woodcock-Johnson Tests of Achievement at the end of 1st grade, which we combined into a composite score of reading. Controlling for non-book talk, reading composite scores significantly correlated with parent text utterances but not with overall book-talk, whereas PPVT scores only correlated with overall parent talk (non-book). Results suggest that early experience with the text of books predicts children's later reading performance.

Session C--Conference Auditorium

Complete uniformity: Early acquisition of the passive in Cantonese

Elaine Lau, University of Hawaii - Manoa

It is widely believed that the passive is a late acquisition in most languages, the reasons for which are varied, although input frequency is often cited as a determining factor (e.g., Demuth et al., 2010 amongst others). This study investigates the acquisition of passive in Cantonese, a language in which the passive is even less frequent than English (CAN: 0.00002% vs. ENG: about 0.36%), but in which the agent-phrase is obligatory in every passive utterance. We find that Cantonese speaking children younger than age 4yrs show knowledge of the passive (comprehension accuracy for non-actional verbs above 65%), indicating that uniformity in the input structure may be an even greater determinant of the acquisition of the passive than input frequency. We discuss the results in terms of a 'Complete Uniformity Principle': a fully uniform syntactic structure in the input facilitates acquisition.

Notes

LUNCH SYMPOSIUM

Interface transparency in the acquisition of quantifiers

Jeffrey Lidz, University of Maryland - College Park
Justin Halberda, Johns Hopkins University

We pursue the hypothesis that the verification procedures used in sentence understanding are biased towards those that most transparently compute the relations expressed in the meaning. Consequently, we can use the information that adults and children use in verification as a probe into their linguistic representations. At the same time, development in extralinguistic cognition may place constraints on what resources a learner has available as candidate meanings. We put these two ideas together in a series of studies involving the acquisition of "most" and "more" with both count and mass nouns.

LUNCH SYMPOSIUM

The logical syntax of number words: Theory and acquisition

Julien Musolino, Rutgers University

Questions pertaining to numerically quantified expressions (NQE) (e.g., two balloons, three dogs) have been investigated extensively by both linguists and psychologists. The work of linguists has focused on two related questions, namely (a) what do NQE mean, and (b) what meanings arise when NQE combine (with each other as well as with other expressions). The work of psychologists has been mainly concerned with the developmental aspects of (a), and has focused on verbal counting and its conceptual underpinnings. The work I will discuss represents an attempt to address (b) from a developmental perspective in an effort to bridge the gap between the rich theoretical literature on this topic and the new developmental questions it raises.

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LUNCH SYMPOSIUM

Acquiring the meanings of verbal numerals

Susan Carey, Harvard University

Around age 3½, American children master how verbal numerals embedded in a count routine express natural number, and in doing so master a scheme that allows them to represent the cardinal value of any set whose size does not exceed the length of their current count list. My concern here will be the meanings assigned to verbal numerals *before* children have mastered how counting expresses natural number. I will argue that these meanings derive from the set manipulation machinery in working memory for small sets of individuals, and from quantifier meanings in natural language. I review evidence that numerals' syntactic status as quantifiers helps children hone in on the relevant hypothesis space: evidence from correlations between quantifier mastery and numeral mastery, and from cross-linguistic differences in the age of mastering an exact meaning of "one."

Session A--Metcalf Small

Bilingual and monolingual children attend to object properties differently in a word learning task

Chandra Brojde, University of Colorado at Boulder
Eliana Colunga, University of Colorado at Boulder

In general, children are biased to reject a second label for a familiar object. Bilingual children are less likely to do this, possibly because they are more sensitive to pragmatic cues. The present study addresses an alternative explanation that bilingual children are less biased because they attend less to conflicting object properties. In this study, two-year-old monolingual and bilingual children were taught a novel name for a new category and then tested on their ability to identify a member of the category by a second novel label. In test, the distractor objects were either highly similar or not. Only monolingual children, and not bilingual children, were sensitive to this conflicting property information between target and distractor. While bilingual children may be more influenced by the pragmatic situation, they may also, at the same time, be less influenced by conflicting property information when two labels are applied to one object category.

Session B--East Balcony

Perceptual correlates of L1 phonological representations in Russian-English heritage speakers

Kira Gor, University of Maryland - College Park
Anna Lukyanchenko, University of Maryland - College Park

With the goal to explore perceptual correlates of L1 phonological representations in heritage speakers (HSs), the study examines the performance of Russian-English HSs on two discrimination experiments in comparison to native speakers (NSs) and late L2 second language (L2) learners of Russian. The AXB task demonstrates that HSs do not differ significantly from NSs on the three conditions (/t/ final, /p/ final, CjV), whereas the speeded AX experiment shows that while HSs, similarly to NSs and unlike L2 learners, are able to discriminate most of the contrasts with great accuracy, they are less sensitive to some contrasts (e.g., they show decreased sensitivity to the /p/-/p'/ contrast in the word-final position after the vowel /i/). It is argued that in HSs, the initially acquired perceptual correlates of L1 phonological representations undergo reorganization due to subsequent exposure to the L2 sound system, which results in a less stable L1 perceptual base.

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Session C--Conference Auditorium

The production of complex wh-questions in German

Lydia Grohe, Philipps-University Marburg
Anja Müller, Johann Wolfgang Goethe Universitat Frankfurt am Main
Petra Schulz, Johann Wolfgang Goethe Universitat Frankfurt am Main

This study investigated the production of complex wh-questions in 4-year-old German-speaking children. An elicited imitation task assessed three different structures: (i) *Long distance-wh*-questions (overt long-distance movement), (ii) *Parenthetical-was* (short wh-movement), (iii) *Partial-wh*-questions (covert long-distance movement). *Partial-wh*-questions and *copy-wh*-questions are assumed to be precursors to *long-distancewh-* questions in the acquisition of English and French (Thornton, 1990; Oiry & Demirdache, 2006). 17 4-year-olds and 17 adults were asked to imitate questions of the types (i)-(iii). Adults correctly repeated 99,5% of the wh-questions. Children's performance on *parenthetical-was* (48% correct) and on *partial-wh* (59% correct) was significantly better than on *long-distance-wh* (24% correct). A qualitative error analysis showed that the children converted 23% of all incorrectly imitated sentences into *partial-wh*-questions and 20% into *copy*-questions. These results show that German-speaking children have difficulty with *long-distance-wh* questions. They prefer *copy-wh* and *partial-wh*-questions, suggesting that these are crosslinguistically available precursors, whether the target language allows them or not.

Session A--Metcalf Small

Effects of labels on children's category boundaries

Meghan Johanson, University of Delaware
Anna Papafragou, University of Delaware

How does language influence children's categorization? We morphed together images of two target objects (e.g., two flowers). Each morphed image was 10%, 30%, 50%, 70%, or 90% like one of the targets (50% being completely ambiguous between the two targets). Four-year-olds and adults saw a triad of two targets and one morphed image. For each target, they were given a different nonsense *Label* ("This one is called a blick/a dax"), a physical *Fact* ("This one has long/short petals") or *No Cue* ("Look at this one!"). Later participants were asked which of the two targets each morphed picture went with. Participants were generally accurate with unambiguous trials. For ambiguous (50%) trials, participants were at chance between the two targets in the No Cue condition. Crucially, facts and labels were shown to affect categorization of ambiguous trials differently for adults and children. We discuss implications of these findings for theories of categorization.

Session B--East Balcony

Electrophysiological indices of six-month-olds' sensitivity to English vowels: Language experience and gender effect

Yan Yu, City University of New York - Graduate Center
Valerie Shafer, City University of New York - Graduate Center

Children who are exposed to two languages from birth have a different developmental trajectory for speech perception from their monolingual counterparts (e.g., Bosch & Sebastián-Gallés, 2003). However, the neurophysiological underpinnings of this development are under-studied. We used an auditory oddball paradigm in an event-related potential experiment to measure the neurophysiological responses from six-month-old infants to an English vowel contrast. The two groups were infants from monolingual English household and bilingual Spanish-English household. The results showed that both monolingual and bilingual infants exhibited discrimination as indexed by a positive mismatch response (pMMR) in the time range of 200-400 ms. However, the bilingual infants had smaller pMMR amplitude with more bilateral distribution at superior sites compared to the monolingual peers. In addition, there was a group by gender interaction driven by the bilingual females. These findings reveal that as early as six months of age, the influence of bilingual input is apparent.

Session C--Conference Auditorium

The acquisition of relative clauses in child Mandarin

Jidong Chen, California State University at Fresno
Yasuhiro Shirai, University of Pittsburgh

This study investigates the emergent types and developmental trajectory of relative clauses in child Mandarin. We analyzed spontaneous production of relative clauses by 6 monolingual Mandarin-learning children (0;11 to 3;5 yrs) and their input from two longitudinal naturalistic speech corpora. The results reveal that according to the syntactic role of the head noun in the relative clause the emergent relative clause types does not follow the prediction of the Noun Phrase Accessibility Hierarchy (NPAH, Keenan & Comrie, 1977), which contrasts sharply to those observed in English, German (Diessel, 2004; Diessel & Tomasello, 2000) and Japanese (Ozeki & Shirai, 2006). According to the syntactic role of the head noun in the matrix clause, isolated noun phrases dominate, followed by relatives that modify the subject or object of the matrix clauses and predicate nominal relatives. This pattern also differs from that observed in English and Japanese. We propose that language-specificity and usage-base learning together lead to the observed learning patterns in Mandarin.

Notes

Session A--Metcalf Small

Ambiguous pronoun processing development:
Probably not U-shaped

Joshua Hartshorne, Harvard University
Rebecca Nappa, Harvard University
Jesse Snedeker, Harvard University

Pronouns typically refer to the most prominent entity in the discourse. Cues to discourse prominence include being mentioned first and being mentioned repeatedly. If such cues are acquired through statistical learning, children should acquire cues in order of their validity. Alternatively, if discourse prominence derives from early-emerging linguistic or conceptual abilities, even young children should exhibit adult-like sensitivity to discourse-salience cues. Interestingly, previous studies suggest U-shaped development, but may be confounded by differences in methodology. To explore these questions, 18 5yos (5;0-5;11) listened to ambiguous pronouns within three different discourse prominence conditions as they viewed related illustrations and eye-movements were tracked. In the *Two-Cue-Condition*, one character was both first-mentioned and repeatedly mentioned. The *Two-Cue-Delay Condition* was identical, but with two additional sentences inserted before the pronoun. In the *One-Cue Condition*, the only cue was first-mention. Both offline (pointing) and online (eye-tracking) behavior suggested adult-like sensitivity to discourse prominence in all conditions.

Session B--East Balcony

Learning to understand aspect across languages

Angeliek van Hout, University of Groningen
Natalia Gagarina, ZAS Berlin
Wolfgang Dressler, University of Vienna
and 25 more authors

We investigated how the structural expression of aspect in a language impacts the comprehension of aspect. Our study involved thirteen languages. Results show that in languages with highly grammaticalized aspect (English, Standard and Cypriot Greek, Croatian, Polish, Russian, Serbian) and medium grammaticalized aspect (Italian, Spanish, Basque), children have firmly acquired the entailment completion of perfective aspect in contrast to languages where aspect is hardly grammaticalized (Danish, Dutch) or not at all (Estonian). Aspect acquisition thus cuts across language-family boundaries. In a TVJ-task children judged perfective/imperfective forms for complete and incomplete situations presented in movies. Perfective-incomplete was the crucial condition targeting rejection, since perfective entails completion. 266 five-year-olds participated. Our crosslinguistic sample reveals how acquisition is helped or hindered by the specifics of aspectual encoding—degree of aspect integration into the grammar, obligatoriness of aspectual distinctions, and its homogeneity of expression. We conclude that degree of grammaticalization determines ease of acquisition.

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Session C--Conference Auditorium

Infants and adults use word-level statistics in phonetic category acquisition

Naomi Feldman, Brown University
Emily Myers, University of Connecticut- Storrs
Katherine White, University of Waterloo
Thomas Griffiths, University of Califormia- Berkeley
James Morgan, Brown University

Infants begin segmenting words from fluent speech during the same period as they learn phonetic categories. Interaction between these learning processes can potentially lead to more robust learning, helping learners separate acoustically overlapping categories. To examine whether word-level information influences phonetic category learning, adults and 8-month-old infants were familiarized with isolated pseudo-words, *guta* and *lita*, in which the syllable *ta* was taken from an 8-point *tah-taw* continuum. Subjects heard either all *ta* sounds in both lexical contexts, or the *tah* half of the continuum in one lexical context and the *taw* half in the other. Adults assigned continuum endpoints to different categories more often when the sounds occurred in distinct lexical contexts. Infants showed evidence of a similar pattern, but this behavior was modulated by other factors such as phonological naturalness. Results support an interactive learning model, demonstrating that higher-level information constrains. phonetic category learning.

Session A--Metcalf Small

Relevance inferences in 3-year-olds

Cornelia Schulze, Max Planck Institute for Evolutionary Anthropology
Susanne Grassmann, Max Planck Institute for Evolutionary Anthropology
Michael Tomasello, Max Planck Institute for Evolutionary Anthropology

In every-day conversation, speakers often communicate meaning indirectly beyond that what they explicitly say. Recipients therefore need to infer the speaker's actual communicative intention. To address the question whether young children are able to derive inferences based on their expectation of relevance, we conducted a study with 36-month-old children (range 2.10-3.2 years of age). An object-selection task was used. We found that, when confronted with seemingly irrelevant utterances, young 3-year-olds are able to integrate these utterances into the current context by deriving relevance inferences. The fact that in the current study even 3-year-olds showed inferential understanding of communicative intention is especially interesting given that previous research found that only from 6 years on children are able to make relevance inferences (cf. Bucciarelli et al., 2003; de Villiers et al., 2009; Loukusa, Leinonen, & Ryder, 2007; Verbuk, 2009). Furthermore, the current study shows that understanding relevance is independent of understanding false belief.

Session B--East Balcony

Testing the predictions of the Feature-Assembly Hypothesis: Evidence from the acquisition of Spanish aspect morphology

Laura Dominguez, University of Southampton
Maria J. Arche, University of Greenwich
Florence Myles, Newcastle University

According to the Feature-Assembly Hypothesis (FAH) (Lardiere 2005, 2009, Choi and Lardiere 2006a) convergence is determined by whether L1 features have the same morpholexical expressions in the L2 and whether learners can effectively reconfigure them when they do not. We investigated the validity of this prediction for the L2 acquisition of Spanish imperfect which requires native speakers of English to remap semantic concepts regarding the temporal status of events [+/-bounded] onto new morphological configurations (imperfect and perfect morphology). Data from 60 L1 English learners of Spanish and 15 native speakers who completed a context/sentence matching task show that only the meaning associated with Spanish imperfect which requires a new semantics-morphology mapping is problematic. We argue that a hypothesis, such as the FAH, which takes into account the conditions which determine the expression of aspect-related features, can adequately provide a fine-grained explanation of morphological variation in this grammatical domain.

Session C--Conference Auditorium

Word-forms can help learners form phonetic categories

Daniel Swingley, University of Pennsylvania
Carrie Slaton, University of Pennsylvania

Infants learn phonetic categories and word-forms of their language simultaneously in development. Word-forms might help infants partition phonetic space by tagging constituent phone tokens; e.g., varying instances of "fish" help cordon off the phonetic space of /I/. In an adult experimental model of this process, participants heard a distribution of vowels in referentless novel-word contexts. Vowels were all English /A/, but formed two distributional categories by second formant (F2). For some subjects, word types marked categories: each type had low or high F2. For other subjects, each word type had both high and low F2 tokens. After training all participants performed binary classification of novel vowel tokens. Subjects for whom words marked categories performed significantly better in maintaining the F2-based category partition they evidently learned in training. If this contextbased learning mechanism is conserved over development (as is usual), it may help explain infant phonetic learning.

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PLENARY ADDRESS

Children's grammatical conservatism: Implications for syntactic theory

William Snyder
University of Connecticut

Young children's <u>spontaneous speech</u> contains a tiny subset of the logically possible syntactic errors. The vast majority of attested errors involve omission, not "co-mission," and the types of co-mission errors that do occur are remarkably consistent across children. This pattern, which I term "grammatical conservatism" (GC), demands an explanation.

GC poses a challenge to any model of acquisition such as Gibson & Wexler's Trigger Learning Algorithm, where the child first adopts a series of possible (but incorrect) adult grammars, because such an account predicts abundant co-mission errors. Instead, I will argue, the child reserves judgment, and begins making productive use of a new syntactic structure only when she is confident she has identified the adults' (abstract) grammatical basis for it. That this is even possible has profound implications both for the mechanisms of child language acquisition, and for the nature of syntactic knowledge.

Non-word repetition in successive bilingual children: Similar or different pattern from monolingual children with SLI?

Theodoros Marinis, University of Reading

Successive bilingual (L2) children perform similarly to monolingual (L1) children with Specific Language Impairment (SLI) in morpho-syntactic phenomena (e.g., Paradis, 2010), and also in non-word repetition (e.g., Girbau & Schwartz, 2008). However, it is unclear whether or not they show the same pattern of errors. To address this issue, 45 6-to-9 year-old Turkish-English TD children and 32 L1 age-matched controls participated in The Children's Test of Nonword Repetition (CNRep) (Gathercole & Baddeley, 1996). The Turkish-English children had an age of onset between 2;6-3;6 and 2;5-6 years of exposure. L2 children were less accurate than L1 children and most L2 children scored within the clinical range. The accuracy of both groups decreased as the syllable number increased, but both groups had a similar pattern of performance and error pattern. This suggests that in-depth analysis of non-word repetition results can aid differential diagnosis of L2 children with and without language impairment.

On-line evidence of early word familiarization in nine-month-olds

Caroline Junge, Max Planck Institute for Psycholinguistics

Twelve-month-olds can recognize novel exemplars of early words, but only after extensive training from nine months on (Schafer, 2005). What happens in the brain during such a training? In this ERP-experiment, 21 nine-month-olds saw 10 training-test blocks. Each training phase showed six pairings of one category (e.g. cat), followed by six pairings of another category (e.g. shoe). Pairings were either constant (one examplar) or multiple (six different pictures per category). Regardless of pairing-type, the last three pairings [4-6] elicited an N300-500, compared to the first three pairings. Comprehension for novel exemplars was subsequently tested in a picture-word mismatch paradigm. Here, we observed an N400. German 12-month olds, however, did not show such an effect (Friedrich & Friederici, 2005). Our study makes it implausible that the latter is due to an immature N400 mechanism. There was no interaction by pairing-type, suggesting that this does not affect infants' word recognition of novel exemplars.

The acquisition of novel constructional patterns by five-year-olds and adults

Elizabeth Wonnacott, University of Oxford
Jeremy Boyd, University of Illinois - Urbana-Champaign
Jennifer Thomson, University of Oxford
Adele Goldberg, Princeton University

Over the course of three days, five-year-olds and adults were exposed to a novel VOS construction that referred to events in which one entity approached another (e.g., *Wugging frog bear* describes an event in which a bear flies towards a frog). Testing occurred on days one and three, and consisted of three tasks: act out, production, and forced choice comprehension. Results showed that adult performance was at ceiling across tasks and conditions; in contrast, children's learning was more tentative, and was affected by the quantity and structure of the input. First, children's performance improved from day one to day three. Second, children whose input exemplified the construction with just a single verb were reluctant to extend use of the construction to new verbs on both days. These outcomes suggest that conservatism in children's learning is a function of both the statistical structure of their input, and of their age.

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The early recognition of verb affixes:
Evidence from Portuguese

Tatiana Bagetti, Catholic Pontifical University of Rio de Janeiro
Letícia Correa, Catholic University of Louvain

The early sensitivity to the morphophonological pattern of verb affixes was investigated. A HPP (Headturn Preferential Procedure) experiment is reported. Two groups of children acquiring Portuguese (mean ages: 10,36; 16 months) listened to normal and modified versions of short narratives. The sequences [ey]; [ow]; [ew] and [iw] of stressed syllables were altered either in verb affixes (AFMOD condition) or in nominal roots (RMOD condition), without affecting the syllable pattern. The alterations in verb affixes affected the morphophonological pattern of 1st/3rd person singular past tense forms. Those in nominal roots gave rise to pseudo-words. If children were sensitive to verb affixes, they would be expected to detect alterations in AFMOD. The results confirmed this prediction: children listened to AFMOD stories for less time than to the unmodified ones (p<.001; p<.01 for 10 month-olds and 16 month-olds, respectively) and the latter did not differ significantly from stories in the RMOD condition.

Seeing, saying, and remembering: Children's understanding of discourse constraints on choice of referential expressions

Hila Katz, University of Pennsylvania
John Trueswell, University of Pennsylvania

We examined preschoolers' (N=24) and adults' (N=16) ability to modulate the form of their referring expression based on discourse structure and the distinctiveness of referents. Participants viewed video clips of a person acting on objects and instructed a confederate sitting opposite them to act on those same objects. Across clips, participants either had to refer to the same referent (No Switch) or alternate between two referents (Switch), requiring fuller expressions in the latter but not the former. We also manipulated whether referents were Similar (a small and large pig) or Different (a pig and a horse). Children were significantly more likely to use disambiguating modifiers during Similar trials (p<.0001), and to reduce referential form across clips (e.g. from definite noun phrase to pronoun) only in No Switch trials (p<.05); furthermore, gesture brought children's informativeness to adult-like levels. Children's choice of referential expressions reflects adult-like sensitivity to discourse and referential scene.

Prosodic transfer at different levels of structure: The L2 acquisition of Spanish plurals

Heather Goad, McGill University
Lydia White, McGill University
Joyce Bruhn de Garavito, University of Western Ontario

A growing literature attributes L2 learners' challenges with inflection to transfer of L1 prosodic constraints, but there is disagreement about the level of structure implicated: syllable structure (Lardiere 1998, 2003, Garavito 2008) or higher prosodic structure (Goad et al. 2003, Goad & White 2006). We support the latter position, reanalysing results from Garavito (2008) on French speakers' difficulties with Spanish plural. We observe variable suppliance of plural for beginners alongside stress shift to the syllable containing the plural suffix. We argue that these are connected. These learners understand that plural must be adjoined to the PWd in Spanish, in contrast to the PWd-internal representation for inflection in French, but they cannot build this representation. Consequently, they either delete plural or they resort to the L1 representation which leads to stress shift. Intermediate learners organize the plural in target fashion. Consequently, plural suppliance rates are high and stress shift is not observed.

A hypothesis testing model of question formation: Evidence from auxiliary omission and inversion

Lidiya Tornyova, City University of New York - Graduate Center
Virginia Valian, City University of New York - Hunter College

In producing wh-questions, young English-speaking children omit an obligatory auxiliary or they fail to invert an included auxiliary. We propose that target-specific language properties determine what types of errors occur and how difficult they are to dislodge. In our hypothesis testing model, languages with consistent and uniform properties provide a narrow hypothesis search space (e.g., Bulgarian) while languages with inconsistent properties prolong acquisition by providing a broad search space (e.g., English). The current study illustrates the model via comparison of 21 children's imitation of English (N=10, M=2;9) and Bulgarian (N=11, M=2;9) wh-questions. As predicted, participants showed similar auxiliary omission rates in English and Bulgarian because both languages demonstrate inconsistencies with respect to auxiliaries. In the case of inversion, however, Bulgarian provides evidence for a small set of hypotheses and English for a larger set. Again, as predicted by the model, Bulgarian-speaking children mastered inversion earlier than English speaking children.

When Bayes betrays: How linguistic hypotheses shape learning biases

Annie Gagliardi, University of Maryland - College Park
Jeffrey Lidz, University of Maryland - College Park

A number of studies have shown narrow extension in word learning by children. Xu & Tenenbaum argue that this pattern of behavior follows from a general principle of Bayesian learning. We argue that this bias does not stem from a general learning principle, but is specific to word learning. While a bias to only extend narrowly may be useful in word learning, where words often have specific meanings, it would be overly constraining in other types of learning, such as agreement. Grammatical gender agreement, for example, is triggered by a whole class of words, thus a bias to treat the agreement as being triggered by a very specific subset of words would hinder a learner. We show that generalization patterns for novel words differ from those for novel agreement forms, suggesting that the nature of the linguistic hypothesis space plays a significant role in defining how Bayesian learning principles apply.

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Development of adult-like speech categorization in 3- and 5-year olds

Dan Hufnagle, Carnegie Mellon University
Lori Holt, Carnegie Mellon University

Auditory context influences listeners' perception of speech, even when context consists of nonspeech tones. Explanations of speech context effects that rely on the recovery of speech-specific information might assume that nonspeech context effects are weak or non-existent for young listeners, while general auditory accounts of nonspeech context effects that rely on general characteristics of audition would predict strong effects regardless of the developmental level of the speech system. 3- and 5-year olds categorized 7 speech targets from a /da/-to-/ga/ continuum to gather baseline data on which targets were ambiguous for each child. Children then categorized ambiguous speech sounds that followed nonspeech contexts that consisted of a 22- tone melody. In adults, lower-frequency contexts shift perception towards higher-energy /da/, while higher-frequency contexts shift perception to /ga/. Children exhibited strong, adult-like context effects, even though their categorization without context was not adult-like, providing support for general auditory explanations of context effects.

Noun and verb learning in English- and Mandarin-acquiring 24-month-olds

Erin Leddon, Northwestern University
Sudha Arunachalam, Northwestern University
Xiaolan Fu, Chinese Academy of Sciences
Han Gong, Northwestern University
Lamei Wang, Saarland University
Sandra Waxman, Northwestern University

Decades of research have debated whether early word learning proceeds differently across so-called 'noun-friendly' (e.g., English) versus 'verb-friendly' languages (e.g., Mandarin), yet few behavioral studies have examined this difference. To address this gap, we asked whether Mandarin-acquiring 24-month-olds can map novel verbs to action categories, as has been shown in previous work with English-acquiring infants (Arunachalam & Waxman, 2009). Extending this paradigm to Mandarin, we presented infants with a novel word (noun or verb) as they viewed scenes of a human acting on some object (e.g., man waving a balloon). At test, infants chose between two scenes: Same-Action (e.g., *waving* a rake), and Same-Object (e.g., tapping the *balloon*). Those who heard novel verbs chose the Same-Action scene significantly more than those who heard novel nouns. These results provide the first experimental evidence that, like English-learners, Mandarin-acquiring infants as young as 24 months can map novel verbs to action categories.

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2-year-olds' sensitivity to pronoun case in English sentence comprehension

Letitia Naigles, University of Connecticut - Storrs
Caitlin Reynolds, University of Connecticut - Storrs
Aylin Kuntay, Koc University

English is a strict word order language; however, personal pronouns are marked for case, so English-learning children must also acquire this fragment of a case system. English learners begin to produce case on their personal pronouns between the ages of 2 and 3, with some initial errors; we tested 27- and 35-month-olds' *comprehension* of 3rd person pronouns using IPL. Children watched side-by-side videos with boy and girl actors engaged in familiar transitive actions, paired with sentences with pronoun arguments ("She is tickling him" vs. "He is tickling her"). Children's eye movements were coded off-line. The 35-month-olds looked longer at the matching scene during the test trials, especially during the 2nd half. They also preferred the matching scene more frequently on *she-him* trials than on *he-her* trials. No significant effects were observed for the 27-month-olds. Transitive sentences with 3rd person pronouns seem harder to understand than those with full NPs.

Spontaneous implicit naming of visual objects

Manizeh Khan, Harvard University
Jesse Snedeker, Harvard University

Recent studies have shown that adults activate word forms for objects presented visually, even in nonverbal tasks (e.g. Meyer et al., 2007). Automatic verbal encoding could support adults' ability to rapidly incorporate visual context in language processing, and thus a failure to do so might partially explain children's corresponding weaknesses. The current study explores spontaneous implicit naming by four-year-olds, seven-year-olds and adults in a nonverbal recognition memory task, adapted from Zelinsky & Murphy (2000). Participants were given two images with monosyllabic names and two with multisyllabic names to remember, with a recognition test following each trial. We tracked participants' eye movements as they encoded these pictures. When participants were given instructions to explicitly label the pictures, all three groups looked significantly longer at the multisyllabic items, but without these instructions, only the adults showed this effect. These results suggest that neither four- nor seven-year olds systematically engage in implicit naming.

Rapid acquisition of expletive negation in modern Hebrew

Aviad Eilam, University of Pennsylvania
John Trueswell, University of Pennsylvania

Expletive negation (EN)—the occurrence of a negative marker in a sentence without negating it—surfaces in languages as diverse as Spanish, Russian, and Modern Hebrew. Its acquisition is a notable feat: children learn to associate the negative marker with a non-negative interpretation in a restricted set of contexts, in spite of their early and robust use of standard negation in a broader set of environments, which includes the EN environment, and despite the rarity of EN in the input. This study uses a novel act-out task to show that Hebrew-speaking children nonetheless acquire EN at a young age, as early as 4, and do not misinterpret EN as standard negation. It thus contrasts with previous research on EN, using truth value judgment tasks, where Russian-speaking children are reported to interpret EN correctly from the age of 5;5, while Spanish speakers do so only from age 7.

Notes

Universal constraints on the discrimination of Place of Articulation? Asymmetries in the discrimination of 'paan' and 'taan' by 6-month-old Dutch infants

Nienke Dijkstra, Radboud University Nijmegen
Paula Fikkert, Radboud University Nijmegen

This paper investigates whether six-month-old Dutch infants discriminate differences in primary Place of Articulation in novel word forms *paan* (labial initial consonant) and *taan* (coronal initial consonant). We tested 20 infants with the recently developed Hybrid Visual Habituation Procedure (Houston et al. 2007). Our results show an asymmetry in perception: whereas infants habituated on *paan* showed dishabituation upon hearing the change to *taan*, those habituated on *taan* did not show dishabituation to *paan*. This raises the question whether there are universal saliency differences that drive discrimination or whether general markedness constraints play a role in phonology.

Structure building and syntactic movement in Italian SLI children

Chiara Branchini, University of Milan - Bicocca
Cristina Benetti, UOMPIA, Desio (MI) Italy
Eleonora Carravieri, Fondazione IRCCS
Fabrizio Arosio, University of Milan - Bicocca

We tested 10 Italian SLI children (age range 6-8) plus 10 age matched controls and 10 language matched controls (age range 5-6) in the production of relative clauses (RCs). SLI children produced less RCs than TD controls (p=0.00); they produced declarative sentences, unlike TD controls (p=0.03). Subject RCs were easier than object RCs in each group (p=0.00). SLI and TD children avoided the production of target object RCs differently: age matches produced passive RCs (34%) and reduced head RCs (53%); language matches produced reduced head RCs (70%); SLI children produced declarative sentences (20%), made thematic role errors (37%) and morphological errors on the verb (22%). SLI children, however, never omit complementizers nor do they make structural errors when producing RCs. This suggests that the deficit lies in the representation of syntactic movements and in the assignment of thematic roles to moved constituents rather than on structure building.

Notes

Forming word-word relationships in infancy

Nivedita Mani, University of Göttingen

This paper examines how quickly newly learnt words are incorporated into the infant lexicon such that they influence recognition of other similar-sounding words, i.e., are phonological priming effects found when priming with newly learnt words: 24-month-olds were introduced to novel word-object associations of two novel words (*booba* and *sheffi*). Learning of the novel word-object associations was then tested by examining infants' looking behaviour when presented with both objects simultaneously followed by the label for one of the objects. We then examined whether infants were primed by these novel words in their recognition of other similar-sounding words – does priming by *booba* influence infant's recognition of *bed* compared to an unrelated word like *shoe*? A significant difference between primed and unrelated trials was found, suggesting that newly learnt words are quickly incorporated into the infant lexicon, such that these words influence the recognition of other similar-sounding words.

Mapping between particles and intentionality in Japanese preferential looking

Franklin Chang, University of Liverpool
Tessei Kobayashi, NTT Communication Science Laboratories

Intentional actions can be described with transitive utterances and unintentional actions with intransitive utterances. We examined whether infants can map language-specific markers of transitivity to actions which were superficially similar, but which differed in whether the action was intentional. We examined this process in Japanese where arguments can be omitted and where particles signal the role of arguments. Japanese utterances with a single subject/object-marked phrase were presented with scenes that differed in the intentionality of the action. 20-month-old and 24-month-old infants were tested with preferential looking. While the 20-month-olds showed no bias, the 24-month-olds were more likely to look at the scene that did not match the form of the utterance. This developmental change is difficult to explain if children have some innate tendency to learn adult-like mappings and instead, suggests that frequent argument omission in the input could be influencing the acquisition of these mappings.

When animacy trumps word order: (Eye) tracking a comprehension delay in English-speaking preschoolers

Gisi Cannizzaro, University of Groningen
Petra Hendriks, University of Groningen

An early comprehension delay is investigated in which English-speaking preschoolers use animacy rather than word order as a cue in sentence comprehension, but not in production (Chapman & Miller, 1975). Optimality Theory predicts such an asymmetry if a child entertains an incorrect constraint ranking, with a grammatical constraint on meanings (e.g., pertaining to animacy) that is ranked too highly (Hendriks, de Hoop, & Lamers, 2005). Preschoolers were tested using picture selection, looking only, and elicited production tasks with sentences in which subject and object animacy were manipulated. Adult controls rarely made mistakes in their responses but were slower in answering when the subject was inanimate. In their responses children performed better in production than comprehension when the subject was inanimate. Analysis of gaze data collected during both the looking task and the pointing task for children was also compared.

Modeling the acquisition of speech segmentation bottom-up and top-down

Diana Apoussidou, Utrecht University

There is evidence that infants use both bottom-up (e.g. phonactics; Mattys, Jusczyk, Luce & Morgan 1999) and top-down strategies (lexical information, e.g. Bortfeld, Morgan, Michniek Golinkoff & Rathbun 2005) for segmenting the speech stream. In the computational model entertained here, a phonotactic learning mechanism STAGE ('Statistical learning and Generalization'; Adriaans & Kager 2010) is combined with a top-down mechanism UP ('Use Proto-words'). UP takes the resulting segmentation of STAGE as first words and formalizes them as lexical constraints (cf. Boersma 1998, Apoussidou 2007). These are used on new input to find more word boundaries. The lexical and phonotactic constraints are induced in the process (in contrast to previous proposals; e.g. Brent & Cartwright 1996, Brent 1997). A segmentation strategy based on phonotactics alone (bottom-up), one based on lexical segmentation alone (top-down), and the combined strategy will be compared with each other.

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Comprehension of exhaustive wh-questions in early L2 and L1 learners of German - cross-linguistically uniform or language-specific acquisition?

Angela Grimm
Magdalena Wojtecka
Alexandra Ritter
Petra Schulz
Johann Wolfgang Goethe Universität Frankfurt am Main

Languages express exhaustivity in wh-questions inherently via quantification of wh-pronouns or overtly via lexical means. Marking of inherent exhaustivity is claimed to be universally uniform, while overt exhaustivity is language-specific. This difference implies different acquisition patterns, in particular if the performances of early L2-learners (eL2) in their L1 and L2 are compared. Therefore, we administered the same picture-with-story-task to 13 eL2-learners of German (mean age:4;2) in their L1 and L2-German. 54 German age-matched monolinguals served as controls. In their respective L1s, both groups did not differ wrt mastery of inherent exhaustivity. However, only the monolinguals benefitted from overt exhaustivity marking in German. As predicted, all eL2-learners who mastered exhaustivity in their L2, also mastered it in their L1. We argue that inherent exhaustivity is acquired cross-linguistically uniform, whereas overt exhaustivity requires mastery of language-specific rules. Our findings support linguistic accounts stating that different grammatical principles underlay inherent and overt exhaustivity.

Anaphora resolution in the acquisition of Basque

Maialen Iraola Azpiroz, University of Konstanz
Maria José Ezeizabarrena Segurola, University of the Basque Country

P(osition) of A(ntecedent) S(trategy) for intrasentential anaphora resolution in null-subject languages like Italian (Carminati 2002, 2005) states that null subject pronouns have a very strong bias towards the most prominent antecedent located in Spec IP whereas their overt counterparts tend to show more flexibility in their antecedent preferences and select an antecedent lower in the phrase structure. This study presents two data sets in Basque: a corpus of early spontaneous null and overt pronouns (2-4 years) and results of an experiment on the interpretation of intrasentential anaphora by 21 children (6-7 years) and 10 adults. Response patterns of children and adults in the experiment were very similar in null subjects (16.3% of difference) but different in overt pronouns (54.4% of difference). PAS correctly accounts for the anaphoric behaviour of Basque pronouns in adults, but it is overridden by the Parallel Function Strategy (Sheldon 1974) in the performance of children.

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ERP correlates of anomalous morphosyntactic processing in adults and children with Developmental Dyslexia

Chiara Cantiani, University of Milan - Bicocca
Maria Luisa Lorusso, Scientific Institute "E.Medea", Bosisio Parini (Italy)
Paolo Perego, Scientific Institute "E.Medea", Bosisio Parini (Italy)
Maria Teresa Guasti, University of Milan - Bicocca

Morphosyntactic processing in adults and children with Developmental Dyslexia (DD) has been investigated by means of event-related potentials (ERPs). Four groups of Italian-speaking participants were included: 16 adults and 16 children (aged 8-12) with DD (without any history of language problems) were compared with two groups of unimpaired control participants. Sentences including subject-verb agreement violations were auditorily presented while ERPs time-locked to the critical morpheme were recorded. Partially in line with expectations, agreement violations evoked in both control groups a broad positive wave (P600), with slight developmental changes. Dyslexic participants, irrespectively of age, showed a different pattern, characterized by an additional statistically significant early negativity (peaking around 300 ms) broadly diffused all over the scalp. These results support the hypothesis of different language processing modalities in DD, where the need of an additional process related to rules retrieval and/or lexical access confirms a general morphosyntactic processing weakness.

Highly proficient Spanish-dominant bilinguals demonstrate sensitivity to difficult English vowel contrasts

Shannon Hoerner, University of Maryland - College Park
William Idsardi, University of Maryland - College Park
Nan Jiang, University of Maryland - College Park

Producing and perceiving L2 phonological contrasts can be hard, particularly for late learners. Even highly proficient bilinguals who have been exposed to an L2 for a long period of time struggle with difficult contrasts (i.e./i-ɪ/ for Spanish speakers learning English) (Flege, Yeni-Komshian, & Liu, 1999; Pallier, Bosch, & Sebastián-Gallés, 1997; Sebastián-Gallés & Soto-Faraco, 1999). We discuss the consequences that poor perception of L2 contrasts has on learners' lexical representations. Experiment 1 examined whether highly proficient Spanish-English bilinguals represent minimal pairs containing difficult English-specific contrasts as homophones or distinct lexical entries. Experiment 2 investigated these bilinguals' sensitivity to the same stimuli using an AX discrimination task. We show, contra to Pallier et al (2001) that while highly proficient late learners of English do not show native-like sensitivity to difficult non-native contrasts, their discrimination ability is sufficiently robust to represent minimal pairs as distinct in the L2 lexicon.

L3 Initial State Models on trial: Subject-to-subject raising across experiencers in L3 Portuguese and Spanish

Jason Rothman, University of Florida
Jennifer Cabrelli Amaro, University of Florida
Gonzalo Campos, University of Iowa

The present study tests the L3 initial state of syntax in Spanish and Portuguese nonnative speakers, examining subject-to-subject (StoS) raising across an experiencer. Two experimental groups (L1 English/L2 Spanish/L3 Portuguese; L1 Spanish/L2 English/L3 Portuguese) were employed to test whether a typologically more similar language transfers to L3 Romance for this property. A scalar grammaticality acceptability task was administered in all three languages to the L3 learners that showed successful acquisition of the properties in the L1 and L2. Results show that both experimental groups' knowledge of Spanish, whether an L1 or L2, was transferred irrespective of its facilitative nature (contra the Cumulative Enhancement Model, Flynn et al 2004). We take this to indicate that typological similarity is the deterministic consideration for the transfer of underlying syntactic properties, when relevant, in line with the Typological Primacy Model (Rothman 2010, in press) and against the predictions of the L2 Status Factor (Bardel and Falk 2007; Falk and Bardel in press).

Discourse-pragmatic effects in the acquisition of clitic doubling

Enkeleida Kapia, Boston University

This study examines the role of syntax and pragmatics in the structure and acquisition of clitic doubling in Albanian. It is argued that with respect to the acquisition of clitic doubling, syntax is intact from age two, while pragmatics does not develop until age four. These results are attained through elicited production data performed with 40 Albanian-speaking children from age 2;0 to age 4;0. The conclusions presented here expand the literature of clitic doubling with data from dative clitics and offer support for the modular nature of language with syntax present from age 2;0 and pragmatics or the interface between pragmatics and syntax not fully matured until after age 4;0.

Perceptual adaptation to foreign-accented speech in 18-month-old infants

Ricardo Bion, Stanford University
Anne Fernald, Stanford University

Can experience with a foreign accent influence 18-month-olds' real-time interpretation of known words? During a familiarization phase, infants were exposed to videos in which a Spanish-accented or native English-speaker labeled a series of objects. Infants then saw pairs of pictures of objects previously seen in familiarization and heard one of them labeled in either a Spanish or native English accent. When familiarized with videos featuring a native English speaker, 18-month-olds processed Spanish-accented words more slowly at test, as compared to words spoken in their native accent. However, infants who were familiarized with the Spanish-accented speaker were equally fast to recognize the foreign- and native-accented words during test. These results show that infants' lexical categories are flexible such that infants' ability to interpret accented words improves with exposure to a foreign accent.

Early language experience facilitates gender processing in Spanish heritage speakers

Justin Davidson, University of Illinois - Urbana-Champaign
Israel de la Fuente, University of Illinois - Urbana-Champaign
Rebecca Foote, University of Illinois - Urbana-Champaign
Silvina Montrul, University of Illinois - Urbana-Champaign

Do heritage speakers (HS) have advantages over L2 learners (L2ers) in morphosyntax? Because results of recent studies are mixed, we revisited this question in three spoken word recognition experiments on gender agreement. 23 Spanish native speakers (NS), 29 HS, and 33 proficiency-matched L2ers completed an aural grammaticality judgment task (GJT), an aural gender-monitoring task (GMT), and an oral repetition task (RT). The results of the GJT and the GMT revealed significant grammaticality effects for all groups, suggesting that they all use gender cues in the noun phrase for noun recognition. Noun ending was not significant for the NS, while HS and L2ers were slower and less accurate with non-canonical ending nouns. In the RT, however, NS and HS showed a grammaticality effect while L2ers did not, suggesting that L2ers may not have the same type of implicit knowledge of gender tested by this task. These results confirm that HS have an advantage over L2ers in less metalinguistically explicit tasks and in oral production.

Atypical electrophysiological lateralization to speech stimuli in infants at risk for autism spectrum disorder

Anne Seery, Boston University
Vanessa Vogel-Farley, Children's Hospital Boston
Tara Augenstein, Children's Hospital Boston
Leah Casner, Boston University
Laura Kasparian, Boston University
Helen Tager-Flusberg, Boston University
Charles Nelson, Children's Hospital Boston

Language impairment is common in autism spectrum disorder (ASD) and is often associated with atypical or reversed lateralization of language networks in the brain. However, it is unclear when this impairment or pattern of lateralization first emerges. Here, we recorded event-related potential (ERP) from two groups of infants (HRA: infants at high risk for developing ASD, and LRC: low risk control infants) at 6, 9, and 12 months in response to consonant-vowel stimuli to examine the perceptual narrowing that occurs as infants learn the phonemes that are used contrastively in their native language. Our findings suggest that HRA follow the same developmental trajectory as LRC infants in terms of learning these phonemic contrasts. However, LRC infants show lateralized response to the speech stimuli by 9 months while HRA infants fail to develop this asymmetry even at 12 months, suggesting possible atypical neural organization over the first year of life.

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The contribution of grammatical and discourse-pragmatic effects to the acquisition of referential choice in child English

Mary Hughes, Boston University
Shanley Allen, University of Kaiserslautern

Children acquiring a first language omit arguments more frequently than adults. The grammatical approach predicts that subjects are omitted more frequently in the context of non-finite verbs, while the discourse-pragmatic approach predicts that subjects are more likely to be omitted when referents are accessible rather than inaccessible. Findings show that children at both observed time periods omit more subjects in the context of non-finite verbs (T1: 48% and T2: 25%) than in the context of finite verbs (T1: 12% and T2: 1%). However, accessibility for three discourse-pragmatic features (i.e., ANIMACY, CONTEXTUAL DISAMBIGUATION, and LINGUISTIC DISAMBIGUATION) does show a correlation with non-finite verbs. In this study, the connection between these features, verb finiteness, and low information referents will be explored. By explicitly comparing two theoretical accounts of early null subjects in the same data, this study provides a model for future studies comparing theoretical accounts of the same phenomenon.

The role of prosodic boundaries in
non-native speech segmentation

Caitlin Coughlin, University of Illinois - Urbana-Champaign
Annie Tremblay, University of Illinois - Urbana-Champaign

This study investigates whether non-native French speakers at different proficiencies can use Phonological Phrase (PP) boundaries signaled by pitch accents in lexical access. Native English-speaking second language (L2) learners of French at two proficiencies (mid and high) and native French speakers completed a word-monitoring task under time pressure. The participants monitored disyllabic targets created phonemically between a monosyllabic word and the first syllable of the following word (e.g., *chagrin* 'sorrow' in *chat grincheux* 'cranky cat'). The phonemically ambiguous syllables either did not cross a PP boundary (*[ce chat grincheux]PP*) or crossed a PP boundary (*[ce chat]PP[grincheux et bedonnant]PP* 'this cranky and chubby cat'). The results show fewer false-alarms to target words when the ambiguous syllables crossed a PP boundary than when they did not, with L2 learners patterning native speakers more closely as their proficiency in French increases. These results suggest that L2 lexical access is prosodically constrained.

Acquisition of object clitics and working memory in
internationally-adopted children from China

Audrey Delcenserie, McGill University
Fred Genesee, McGill University
Theres Grüter, Stanford University

The present study compared the performance of 27 French-speaking Chinese adoptees to that of 27 monolingual non-adopted French-speaking children matched for age, gender, and SES on an elicitation task of object clitics (OC) and on tests of non-verbal intelligence, socio-emotional abilities, and verbal short-term memory. The groups did not differ on non-verbal IQ or socioemotional development, but the adoptees scored significantly lower than the controls on the OC and the verbal memory tasks. No significant correlation was found between their memory scores and either their rates of omission of OCs or the number of errors in OC suppliance. However, regression analyses revealed that the best predictor of adoptees' rates of clitic omissions was their score on the memory task. The findings suggest that the adoptees may experience difficulties in morpho-syntactic development due to limitations in verbal memory, possibly as a result of their delayed exposure to the adopted language.

Bilingual acquisition of Greek voice morphology and Dutch
gender: What do they have in common?

Sharon Unsworth, University of Utrecht
Ianthi Tsimpli, University of Thessaloniki

We investigate bilingual development in English-Greek (n=57) and English-Dutch (n=95) children in their acquisition of two distinct features, namely voice morphology in Greek, and gender in Dutch. These features differ with respect to their role in the syntactic derivation. Despite this difference, the two are similar in that evidence from L1 acquisition suggests that both Greek voice and Dutch gender are acquired rather late, around age 6 (e.g. Tsimpli 2006, Blom et al 2008, Unsworth & Hulk 2010). Various explanations have been put forward for this finding, including the relative complexity of the phenomenon in question, the limited availability of unambiguous cues in the input and Age of Onset (AoO) (e.g. Meisel 2009). For features acquired so late in L1 acquisition, however, we predict that (cumulative) Length of Exposure rather than Age of Onset should be a stronger predictive factor for development.

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Differences in children's and adults' choice of referring expressions as a function of sentence role, accessibility, and ambiguity

Anna Theakston, University of Manchester

In this study, 5-year-olds and adults described scenes that differed according to whether (1) the subject or object of a transitive verb represented an accessible or inaccessible referent, consistent or inconsistent with patterns of preferred argument structure, and (2) a simple noun was sufficient to uniquely identify an inaccessible referent. Although adults did not differ in their choice of referring expression based on sentence position, 5-year-olds were less likely to provide informative referring expressions for subjects than for objects when the referent was inaccessible. Under complex discourse conditions, while adults used complex NPs to identify inaccessible referents, 5-year-olds increased their use of pronominal/null reference for both accessible and inaccessible referents, reducing their levels of informativeness. The data suggest that 5-year-olds are still learning to integrate their knowledge of discourse features with preferred argument structure patterns, and that children rely on well rehearsed patterns of argument realisation, particularly in complex discourse contexts.

Early inflected infinitives and late V-to-C movement

Ana Lucia Santos, University of Lisbon
Ines Duarte, University of Lisbon
Acrisio Pires, University of Michigan
Jason Rothman, University of Florida

We investigate the onset of spontaneous production of inflected infinitives in European Portuguese and show that they are productive before age 3, but only in *para* 'for' purpose clauses. This is not due to the absence of input: adult speech in the same files shows a broader distribution of these forms. We argue that the acquisition of the full distribution of inflected infinitives is dependent on the acquisition of (i) null subjects and (ii) the properties of T and C (Raposo 1987, Duarte, Gonçalves & Miguel 2005, Pires 2006). Therefore, children acquire the morphology of the inflected infinitive while they still show protracted acquisition of its licensing conditions. Adult inflected infinitives are licensed when C is null and there is V-to-C, or when an overt complementizer is merged in C (e.g. *para*). The early emergence of *para* purpose clauses is interpreted as a preference for Merge over Move.

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Acquisition of voicing and vowel alternations in German

Ruben van de Vijver, University of Potsdam
Dinah Baer-Henney, University of Potsdam

We present the results of a study of the acquisition of voicing and vowel alternations in German singular-63 plural pairs. We reach two conclusions. First, we show that voicing alternations, which are grounded phonetically, are learned more easily than vowel alternations, which are not. Second, we show that 5-year olds store allomorphs as unanalyzed wholes. We conducted two production experiments; in one we asked 20 German 5-year olds to produce plurals from given singular words and nonces and in another one we asked 10 German 5-year olds to produce singulars from given plural words and nonces. We analyzed two corpora. In the corpora the alternations occur equally frequent. Evidence for our first conclusion is that children extend voicing alternations rather than vowel alternations in words and nonces. Evidence for the second finding is that children produce singulars from given plural words, but repeat the given singular as plural in nonces.

Session A--Metcalf Small

The use of indirect speech clauses in a narrative context:
A priming study

Ludovica Serratrice, University of Manchester
Anne Hesketh, University of Manchester
Rachel Ashworth, University of Manchester

Fifty English-speaking monolingual 5-6-year-olds took part in a between-subjects production priming experiment. In the pre-training and in the post-training phases children were assessed individually on a story-retelling task. Training consisted of 10 daily group sessions where children listened to a story containing 20 examples of indirect speech (IS) (experimental condition), or 20 examples of direct speech (control condition). The results showed a significant main effect of priming in the number of IS clauses, and in the ratio of IS clauses over the total number of utterances. We also found a significant interaction between phase and condition showing that only the children in the experimental condition produced significantly more IS clauses in the post-test. These findings have implications for the use of priming in ecologically valid contexts (narratives), for evidence of priming beyond the clause level (subordinate indirect speech clauses), and for the persistence of priming over time (implicit learning).

Session B--East Balcony

The acquisition of English main and embedded questions in child and adult SLA: An elicited production study

Lucia Pozzan, City University of New York - Graduate Center
Giulia Bencini, City University of New York - Hunter College
Erin Quirk, City University of New York - Graduate Center
Nancy Eng, City University of New York- Hunter College
Virginia Valian, City University of New York - Hunter College

To test the Fundamental Difference Hypothesis, we compare adult and child second language learners of English on production of subject-auxiliary inversion in main and embedded questions, using similar methods and materials. We investigate the roles of L1 (Chinese: -inversion vs. Spanish: +inversion), question type (yes/no, *wh-*), and *wh*-element (e.g., *what*, *why*). All groups produced main and embedded yes/no questions more accurately than *wh*-questions. Neither the main effect of L1 nor the L1/question type interaction was significant. Since L1-Chinese and L1-Spanish adults behave alike, their errors cannot be imputed to L1 transfer. The fact that child and adult data are similar (for both L1 groups) suggests that adult L2 learners have access to universal grammatical principles. The non-target productions of our participants are similar to those reported in first language acquisition, suggesting that child and adult L2 learners draw on the same set of domain-specific principles in natural language acquisition.

Session C--Conference Auditorium

The roles of phonotactics and frequency in
the learning of alternations

Gaja Jarosz, Yale University

Several recent studies have examined the acquisition of morpho-phonological alternations, with apparently conflicting findings. Production and comprehension studies with both real and nonce words suggest that 3.5-yr-old Dutch-learning children do not yet have productive knowledge of the morpho-phonological voicing alternation (Zamuner et al, 2006; Zamuner et al, 2007: "ZKF"). However, in an artificial language learning task, White et al (2008) find evidence that 1-yr-olds are already learning alternations. This paper presents the results of computational simulations that provide a possible explanation for this discrepancy: the model's behavior is consistent with ZKF's findings and is due to delayed learning of *lexical* representations following phonotactic learning. Under the learning theory, which is cast in a probabilistic Optimality-Theoretic framework, slower learning of alternating stops results from a combination of phonotactic knowledge and the frequency distribution of stops in Dutch. The relationship between experimental findings and the predictions of the model are discussed.

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Session A--Metcalf Small

From chunk to segment: U-shaped patterns in the effect of frames on children's word production

Inbal Arnon, University of Manchester

If children learn language from stored utterances, as suggested in usage-based and exemplar-models of learning, then linguistic units larger than words must play a crucial role in allowing children to discover grammatical relations. Here we test a developmental prediction that children's reliance on larger chunks changes with age as they move from largely unanalyzed chunks to more differentiated units. We investigate the developmental relation between phrases and words by looking at the effect of frequent frames (e.g. Brush your -- teeth) on the production of irregular plurals in three age groups: younger (mean 3;0,N=22), intermediate (mean 3;9,N=21), and older (mean 4;8,N=21). The results reveal a novel effect of context on children's production of irregular plurals. They document a U-shaped pattern in the effect of frequent-frames on production that is consistent with a move from chunks to segments followed by a growing sensitivity to larger patterns words tend to appear in.

Session B--East Balcony

Pragmatic features at the L2 syntax-discourse interface

Roumyana Slabakova, University of Iowa
Gonzalo Campos, University of Iowa
Tania Leal Mendez, University of Iowa
Paula Kempchinsky, University of Iowa
Jason Rothman, University of Florida

This experimental study tests the Interface Hypothesis by looking into processes at the syntax-discourse interface, teasing apart acquisition of syntactic, semantic and discourse knowledge. Adopting López's (2009) pragmatic features [±a(naphor)] and [±c(ontrast)] which in combination account for the constructions of dislocation and fronting, we tested Clitic Left Dislocation, Clitic Right Dislocation, Fronted Focus and Rheme in the comprehension of English native speakers learning Spanish. Furthermore, CLLD and CRLD constitute good domains to examine contrastively, since they are felicitous in slightly different discourse contexts: CLRD requires a relationship of identity between the discourse anaphor and the antecedent, while that relationship in CLLD is much freer: it can be subset, superset, part/whole. Syntactic knowledge of clitics was a condition for inclusion in the main test. Our findings indicate that the near-native speakers are sensitive to all semantic as well as discourse contrasts while the advanced speakers demonstrated complete knowledge of discourse contrasts.

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Session C--Conference Auditorium

Phonological universals in early childhood:
Evidence from sonority restrictions

Iris Berent, Northeastern University
Katherine Harder, Northeastern University
Tracy Lennertz, Northeastern University

Across languages, onsets with large sonority distances are preferred to those with smaller distances (e.g., *bw>bd>lb*; Greenberg, 1978). Optimality theory (Prince & Smolensky, 2004) attributes such facts to grammatical restrictions that are universally active in all grammars. Previous research has supported this proposal by demonstrating that adult speakers exhibit grammatical constraints on the structure of onsets unattested in their native language (Berent *et al.*, 2007; Berent *et al.*, 2008). Here, we investigate whether such constraints are active in early childhood. Participants (*M*=4;4 years) were presented with pairs of auditory words—either identical (e.g., *lbif•lbif*) or epenthetically related (e.g., *lbif•lebif*)—and asked to judge their identity. Results showed that, like adults, children's ability to detect epenthetic distortions was monotonically related to sonority distance (*bw>bd>lb*), and their performance was inexplicable by several statistical and phonetic factors. These findings suggest that sonority restrictions are active in early childhood and their scope is broad.

Session A--Metcalf Small

Infinitival-to omission errors in child language

Minna Kirjavainen, University of Manchester
Anna Theakston, University of Manchester

Most 2-3-year-old English-speaking children sometimes omit infinitival-to in obligatory contexts (e.g. *I want hold it vs. I want to hold it). This paper explores whether these omissions can be explained by competition between constructions based on their presence or absence in the discourse context. Some verbs that children hear occur with to-infinitive complements (e.g., I want to go/get/have…' - a 'WANT-to' construction), some without (e.g., I want it/a drink/that… - a 'WANT-X' construction). Competition between these constructions could result in omission errors when the wrong construction is selected for production based on recent use (10 previous utterances). To investigate this, we conducted a corpus analysis on 13 children's data between the ages of 2-3 years. Our findings suggest that competition may provide an explanation for children's infinitival-to omissions and provide support for a usage-based model of language where the distributional properties of language experience play a significant role in acquisition.

Session B--East Balcony

When L2 syntax is target-like and target-deviant at the same time: L1 preemption again!

Michael Iverson, University of Florida
Jason Rothman, University of Florida

In this paper, we examine the L2 acquisition of non-phonetically realized objects in Spanish by highly advanced native speakers of Brazilian Portuguese (BP). In Spanish, only non-specific direct objects can be dropped, subject to subjacency restrictions. Conversely, null objects in BP are not subject to subjacency nor specificity constraints. BP L2 learners of Spanish must acquire both syntactic and semantic restrictions to converge on the Spanish grammar. Advanced L2 Spanish speakers were tested via a contextualized grammaticality judgement task with correction, examining these semantic and subjacency constraints. Results show that the learners have acquired the Spanish specificity constraint well, and perform like native speakers for one of the strong island constraints, that is with DP islands, but show target-deviant variability (i.e. allowing null objects) with adjunct islands and sentential subjects. This suggests that the syntax of Spanish has been acquired, but the L1 licensing of object *pro* still exists in their grammar, implications of which are discussed.

Session C--Conference Auditorium

Probabilistic phonotactics and syllable structure in L2 lexical acquisition

Natalie Boll-Avetisyan, University of Houston

Nonword recall and hence lexical acquisition is influenced by specific sequential knowledge about probabilistic phonotactics (Gathercole et al., 1999), and abstract structural knowledge about syllable complexity (Treiman & Danis, 1988). We hypothesize that structural and sequential knowledge belong to separate sub-lexical knowledge components. Therefore, though it is difficult to learn structural knowledge of an L2 (Broselow, 1984), L2 probabilistic phonotactics should be acquired independently and facilitate L2 lexical acquisition. The results of a nonword recall experiment with Japanese and Spanish learners of Dutch confirm the prediction: Participants experienced facilitation of L2 biphone frequency knowledge in the recall of Dutch-sounding nonwords even if they were structurally more complex than their L1 allows. Still, errors occurred faster in syllable types that were not attested in the L1. Thus, learners benefit from L2 probabilistic phonotactics in L2 lexical acquisition despite of transfer of L1 structure. This supports the hypothesis of separate sub-lexical components.

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Session A--Metcalf Small

Child-directed speech and vocabulary acquisition in a Mayan village

Laura Shneidman, University of Chicago
Susan Goldin-Meadow, University of Chicago

In western communities, the amount and quality of talk that parents direct to children predicts children's later vocabulary. However, in many cultural communities children receive most linguistic input from overhearing others' speech. We examined the relation between directed and overheard speech and children's later vocabulary in one such community. Fifteen 24-month-old Yucatec Mayan speaking children were videotaped at home with their families for one hour. The number of word types in input was extracted from the videotapes. When the children were 36-months-old, children's expressive vocabulary was assessed. We found a strong relation between types directed to children at 24 months and vocabulary size at 36 months, but not between all types (directed and overheard) children heard and vocabulary size. The findings suggest that talk directed to children is particularly important for early word learning, even in communities where the bulk of children's early language input comes from overheard speech.

Session B--East Balcony

The onset of Principle C at 30 months: The role of vocabulary, syntactic development, and processing efficiency

Megan Sutton, University of Maryland - College Park
Cynthia Lukyanenko, University of Illinois - Urbana-Champaign
Jeffrey Lidz, University of Maryland - College Park

Lukyanenko, Conroy, and Lidz (in review) show that vocabulary size predicts performance on a Principle C task in 30 month-olds; only infants with high vocabularies successfully interpret sentences like *"she's patting Katie"* as non-reflexive. Measuring principle C and processing speed within subjects, we replicate the vocabulary split found by Lukyanenko et al., while additionally showing that the vocabulary effect holds even after controlling for the potential contribution of processing speed. These results support the view that success with Principle C is gated by syntactic development (indexed by vocabulary size) and not by independent effects of processing speed.

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Session C--Conference Auditorium

The expression of motion events in bilingual first language acquisition: Evidence for typological constraints in English and French

Helen Engemann, University of Cambridge

Recent research on crosslinguistic diversity has revived debates concerning the relative impact of language-specific and universal constraints on language acquisition. The expression of motion presents us with a striking typological contrast. The present study examines the implications of typological properties for bilingual first language acquisition of English and French. The study compares (1) monolingual English vs. French children acting as controls (4, 6 and 10 years) and (2) simultaneous French-English bilingual children in the same age groups. Both groups described animated cartoons showing complex motion events. Our findings suggest that situations requiring the simultaneous expression of multiple semantic components invite bilingual children to transfer lexicalization patterns from one of their languages to the other when the former provides more transparent ways of achieving high semantic density. Our results support the view that two types of factors determine how children construct the semantics of space: general cognitive and language-specific factors.

Session A--Metcalf Small

Global properties of the phonological network in child-directed speech

Matthew Carlson, University of Chicago
Morgan Sonderegger, University of Chicago
Maximilian Bane, University of Chicago

We use a graph-theoretic approach (Arbesman, Strogatz, & Vitevitch, 2010; Vitevitch, 2008) to compare the lexical networks drawn from corpora of child-directed speech (CDS) (Huttenlocher et al. 2007; Rowe, 2008) and adult-directed speech (Pitt et al., 2007). The networks were constructed using all orthographic word types as nodes, with edges between phonological neighbors and homophones. The CDS network had higher values for global properties that have been associated with *stability* and *searchability* (Kleinberg, 2000; Watts, Dodds, & Newman, 2002): high edge-to-node ratio, clustering coefficient, transitivity, and assortative mixing by degree. This supports the hypothesis that the global neighborhood structure of the CDS lexicon presents favorable conditions for language development. Considering the challenges of using local neighborhood density to compare lexicons (Charles-Luce & Luce, 1990, 1995; Coady & Aslin, 2003; Dollaghan, 1994; Storkel, 2004), comparison by global graph-theoretic properties can shed new light on how neighborhood structure impacts child lexical development.

Session B--East Balcony

Online processing of cataphoric pronouns by children and adults: Evidence from eye movements during listening

Kaili Clackson, University of Essex
Harald Clahsen, University of Essex

Previous studies have shown that adults readily permit co-reference interpretations for pronoun-name sequences, and actively search for an upcoming referent during online processing. Offline studies with children suggest that they generally disprefer co-reference interpretations for pronoun-name sequences, even if not precluded by Principle C, but children's processing patterns have not been studied online. Using the visual-world paradigm and a corresponding offline task we analysed adults' and children's online processing of cataphoric co-reference, both when permitted and not permitted by Principle C. Results showed that online processing patterns mirrored offline preferences in that both groups disprefered co-reference interpretations when blocked by Principle C, but when co-reference was not blocked adults anticipated a co-reference interpretation while children did not. We suggest that the observed child/adult differences are due to children's more rigid reference assignments, which disfavour a pronoun that has already been assigned a referent (via visual cues) entering into further referential dependencies.

Session C--Conference Auditorium

Development of cross-modal mappings of pitch to thickness

Shakila Shayan, Max Planck Institute for Psycholinguistics
Ozge Ozturk, Max Planck Institute for Psycholinguistics
Melissa Bowerman, Max Planck Institute for Psycholinguistics
Asifa Majid, Max Planck Institute for Psycholinguistics

Cross-sensory mappings are basic to human cognition, but there is little consensus about their origin. In the present research, we asked whether the cross-modal mapping of pitch to other domains is innate or learned through experience. In a cross-linguistic similarity matching study, we looked at the mapping between pitch and thickness. We compared speakers of Farsi and Turkish (languages in which pitch is described with "thickness" metaphor, low sounds are called 'thick' and high sounds 'thin') to speakers of German (pitch is described with height metaphor similar to English). Participants were 28–59 month-old-children and adults. Adult speakers of all three languages, and Farsi- and Turkish-speaking children performed significantly better than chance, but German-speaking children did not. These findings suggest that the thickness-to-pitch mapping is learned by both language and world experience. In particular Farsi-Turkish linguistic input promotes the thickness-to-pitch mapping so strongly that even 3-year-olds succeed in the task.

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Session A--Metcalf Small

Representational demand positively influences kindergartners' language development

Ashley Pinkham, University of Michigan
Tanya Kaeffer, University of Michigan
Susan Neuman, University of Michigan

There are marked differences in children's vocabulary knowledge across socioeconomic backgrounds. While previous research has focused on the lexical features of mothers' speech, the content of mother-child conversations has been relatively neglected. We hypothesized that the extent to which mothers' speech requires children to access stored conceptual knowledge may profoundly impact language development. Study 1 examined the speech of 52 mother-child dyads during a goal-directed game; Study 2 examined 59 dyads during shared-reading. Maternal speech was coded for constructs adapted from the NICHD Study of Early Child Care. Principal components analysis revealed two distinct components: lexical richness and representational demand (i.e., conceptual content). Despite SES-related differences for both components, only representational demand significantly predicted children's PPVT scores. Across studies, representational demand mediated the effect of SES on vocabulary knowledge, suggesting that conceptual content significantly influences children's vocabulary development. These results have particularly important implications for facilitating low-SES children's language development.

Session B--East Balcony

The on-line processing of Binding Principles A and B in L2 acquisition: Evidence from eye tracking

Eunah Kim, University of Illinois - Urbana-Champaign
Silvina Montrul, University of Illinois - Urbana-Champaign
James Yoon, University of Illinois - Urbana-Champaign

The present study examined whether adult L2 learners' interpretation of reflexives and pronouns is constrained by Binding Principles A and B and if so, when the principles are applied in real time comprehension. Intermediate-advanced Korean L2 learners of English participated in an eye-tracking experiment with a visual world paradigm, modeled on Runner et al. (2006). Results showed that for reflexives, the learners predominantly chose the binding theory-compatible local antecedents while for pronouns, they frequently chose binding theory-incompatible local antecedents. Thus, the acquisition of the grammatical properties related to Principle B may be delayed, as in child L1 acquisition. The time course of looks to the potential referents for reflexives shows that L2 learners' search for the referent is constrained by Principle A from an early stage, as in native speakers. We discuss the implications of the findings.

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Session C--Conference Auditorium

Another turn on the acquisition of spatial frames of reference terms

Peggy Li, Harvard University

People make use of different frames-of-reference (north-south; left-right) to talk about space. Recent studies explored whether children are capable of noticing the invariant frames-of-reference across instances in order to uncover the cognitive capacities children bring to learning these spatial words. In these studies (e.g., Haun et al., 2006), 4-year-olds often noticed the environment-defined relations and not the egocentric body-defined ones, leading some researchers to conclude that preschoolers are ready to learn environment-defined terms (north-south), but not body-defined ones (left-right). However, such a conclusion may be too general and premature; the experimental results could be an artifact of specific experimental manipulations. In three new experiments, we show that 4-year-olds can easily notice egocentric body-defined relations under certain manipulations. We review our findings in context of other work to provide a clearer account of what makes acquiring body-defined frames-of-reference difficult and why full mastery under normal circumstances may take years beyond age four.

Session A--Metcalf Small

Mother's education predicts spoken word recognition in 6-16-mo.-old infants

Elika Bergelson, University of Pennsylvania
Daniel Swingley, University of Pennsylvania

Socioeconomic status affects children's language development, and predicts language outcomes (e.g., Hart & Risley, 1995, Hurtado, Marchman, & Fernald, 2007). We used a language-guided looking task to measure spoken word comprehension in 6-10 and 11-16-month-olds, with all linguistic stimulus materials being presented by the infant's parent. Families' SES was estimated by questionnaire. While infants in both age groups looked significantly more at the named object overall, analyses of target-looking performance revealed significant correlations between maternal educational attainment and word recognition. Thus, children of less-educated mothers were, even before 18 months, behind their peers in recognizing common words.

Session B--East Balcony

The L2 processing of anaphora resolution under movement

Yi-Ting Wang, Indiana University

This study addresses the question of whether second language (L2) sentence processing is radically different from first language (L1) sentence processing. It explores the nature of L2 sentence processing mechanisms by examining the application of Binding Theory Principle A and Principle B under reconstruction during the processing of *wh*-movement as in (1).

(1)
a. John/wondered/which sketch of himself/Mary/quickly/drew/last/Monday.
b. Mary/wondered/which sketch of himself/John/quickly/drew/last/Monday.
c. John/wondered/which sketch of him/Mary/quickly/drew/last/Monday.
d. Mary/wondered/which sketch of him/John/quickly/drew/last/Monday.

It is assumed that if Binding Conditions are mediated by a movement chain in L2 sentence processing, learners' processing of (1a-d) would allow a test on the representations built up in real time. Two self-paced moving-window tasks were administered to 25 native speakers and 32 learners of English from Chinese and Korean L1 backgrounds. The reading time results show that crucial asymmetries suggestive of the incremental application of Binding Theory are *prima facie* signatures of domain-specificity.

Session C--Conference Auditorium

Initial parsing bias in the perception of spatial relations by bilinguals

Sunyoung Lee-Ellis, University of Maryland - College Park
Shannon Hoerner, University of Maryland - College Park
Jeffrey Lidz, University of Maryland - College Park

Previous research has shown that Korean native speakers (NSs) and infants are sensitive to tight-fit vs. loose-fit relations (a contrast encoded in Korean) whereas English NSs are not (Bowerman & Choi, 2001). This differential sensitivity seems to be acquired very early in life (Hespos & Spelke, 2004). Moreover, the conceptual organization developed in the first language (L1) has been claimed to be "exceptionally resistant to reorganization" (Slobin, 1996). In this presentation, we discuss the results from two experiments that tested Korean, English, and heritage speakers' (n=20 each) sensitivity to Korean *language-specific* tight/loose and *language-universal* containment/support relations. The results show the early-acquired perceptual bias is maintained in a type of early bilinguals (heritage Korean speakers) despite the reduced use of Korean. We argue that the reported differences between English and Korean speakers with respect to the tight-loose fit distinctions reflect the intial event parsing biases, not deep conceptual organizations.

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The first words acquired by adolescent first-language learners:
When late looks early

Naja Ferjan Ramirez, University of California - San Diego
Amy Lieberman, University of California - San Diego
Rachel Mayberry, University of California - San Diego

This study describes the initial ASL acquisition of three deaf 16-year-olds. These unique adolescents communicated with gestures prior to ASL immersion in adolescence. We studied their language after 12 to 24 months of acquisition using the CDI and detailed analyses of their spontaneous language production. The early vocabulary composition of adolescent L1 learners is remarkably similar to that of child L1 learners; moreover, syntactic development as measured by the MLU can be predicted from vocabulary size. Although initially faster than child learners, adolescent L1 learners show a tapering off uncharacteristic of the explosive lexical and MLU growth of child learners. Our data suggest that the initial stages of L1 acquisition are common to all L1 learning, irrespective of age. The subsequent slowing of acquisition was apparent for both lexical and morpho-syntactic development and may reflect maturational limits on first-language acquisition begun in adolescence.

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Prosodic cues to syntactic disambiguation in
second language German

Carrie N. Jackson, Pennsylvania State University
Mary Grantham O'Brien, University of Calgary
Christine E. Gardner, Pennsylvania State University

The present study investigated whether German native speakers and late L2 German learners (English L1; intermediate to advanced L2 proficiency) will use prosodic cues to disambiguate temporarily ambiguous sentences during a contextualized sentence production task. Unlike previous research showing that L2 learners may not use prosodic cues to signal meaningful contrasts during L2 speech production (e.g., Gut, 2009; Ramirez Verdugo, 2002), in the present study the L2 learners' performance paralleled that of German native speakers. An acoustic analysis of the data revealed that for both participant groups, the type of cue used (pauses vs. pitch excursion) – and the strength of the resulting boundary– varied according to syntactic boundary type (clausal vs. phrasal). Further, the L2 learners used a rise in pitch to disambiguate prepositional phrase-attachment sentences, even though previous studies have suggested this may not be a reliable cue to disambiguation in their L1 English (e.g., Snedeker & Trueswell, 2003).

Cross-modal effects in statistical learning: Evidence from the McGurk illusion

Aaron Mitchel, Pennsylvania State University
Morten Christiansen, Cornell University
Daniel Weiss, Pennsylvania State University

Statistical learning plays a vital role in language acquisition, yet it is not known whether it is guided by a unitary, modality-general mechanism, or by several sensory-specific mechanisms. Consistent with the latter view, Seitz et al (2007) tested learners with multimodal input and found that statistical learning in one modality is independent of input to other modalities. We tested this assertion of independence by presenting learners with speech streams synchronized with a video of a speaker's face. We used the McGurk illusion to manipulate the underlying statistical structure of the speech streams. Contrasting the independence hypothesis, our results suggest that participants integrated the audio and visual input to perceive the McGurk illusion during statistical learning, thereby altering the pattern of segmentation. We therefore conclude that auditory and visual inputs are not processed independently and discuss the implications of these findings for resolving the debate about the nature of statistical learning.

Universal constraints on the discrimination of Place of Articulation? Asymmetries in the discrimination of 'paan' and 'taan' by 6-month-old Dutch infants

Nienke Dijkstra, Radboud University Nijmegen
Paula Fikkert, Radboud University Nijmegen

This paper investigates whether six-month-old Dutch infants discriminate differences in primary Place of Articulation in novel word forms *paan* (labial initial consonant) and *taan* (coronal initial consonant). We tested 20 infants with the recently developed Hybrid Visual Habituation Procedure (Houston et al. 2007). Our results show an asymmetry in perception: whereas infants habituated on *paan* showed dishabituation upon hearing the change to *taan*, those habituated on *taan* did not show dishabituation to *paan*. This raises the question whether there are universal saliency differences that drive discrimination or whether general markedness constraints play a role in phonology.

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Alternates

Bilingual acquisition of Greek voice morphology and Dutch gender: What do they have in common?

Sharon Unsworth, University of Utrecht
Ianthi Tsimpli, University of Thessaloniki

We investigate bilingual development in English-Greek (n=57) and English-Dutch (n=95) children in their acquisition of two distinct features, namely voice morphology in Greek, and gender in Dutch. These features differ with respect to their role in the syntactic derivation. Despite this difference, the two are similar in that evidence from L1 acquisition suggests that both Greek voice and Dutch gender are acquired rather late, around age 6 (e.g. Tsimpli 2006, Blom et al 2008, Unsworth & Hulk 2010). Various explanations have been put forward for this finding, including the relative complexity of the phenomenon in question, the limited availability of unambiguous cues in the input and Age of Onset (AoO) (e.g. Meisel 2009). For features acquired so late in L1 acquisition, however, we predict that (cumulative) Length of Exposure rather than Age of Onset should be a stronger predictive factor for development.

Alternates

Differences in children's and adults' choice of referring expressions as a function of sentence role, accessibility, and ambiguity.

Anna Theakston, University of Manchester

In this study, 5-year-olds and adults described scenes that differed according to whether (1) the subject or object of a transitive verb represented an accessible or inaccessible referent, consistent or inconsistent with patterns of preferred argument structure, and (2) a simple noun was sufficient to uniquely identify an inaccessible referent. Although adults did not differ in their choice of referring expression based on sentence position, 5-year-olds were less likely to provide informative referring expressions for subjects than objects when the referent was inaccessible. Under complex discourse conditions, while adults used complex NPs to identify inaccessible referents, 5-year-olds increased their use of pronominal/null reference for both accessible and inaccessible referents, reducing their levels of informativeness. The data suggest that 5-year-olds are still learning to integrate their knowledge of discourse features with preferred argument structure patterns, and that children rely on well rehearsed patterns of argument realisation, particularly in complex discourse contexts.

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Alternates

Do L2ers adopt the pronoun misanalysis of Se? Data from Russian- and English-speaking L2 learners of French
Alyona Belikova, McGill University

Several studies have concluded that L2ers do not generally internalize linguistically misleading rules. Following up on Belikova (2008), I examine L2-acquisition of the French clitic se in light of its classroom misrepresentation as a clitic pronoun. Belikova (2008) shows that Russian-speaking L2ers treat the reciprocal se and clitic pronouns differentially. The present study tests L2ers on the reflexive se and introduces native English speakers as another L2-group. In an acceptability judgement test, while Russian speakers' performance is along the lines of Belikova (2008), English speakers exhibit a weaker contrast between se and clitic pronouns. An additional questionnaire reveals that about half of the participants remember the classroom generalization, but this does not affect their performance. Maintaining that L2-learners are insensitive to linguistically misleading rules, I discuss how the data are accounted for in terms of (residual) L1- transfer (while Russian employs overt reflexive morphology (similar to French), English uses null morphology).

Early inflected infinitives and late V-to-C movement

Ana Lucia Santos, University of Lisbon
Ines Duarte, University of Lisbon
Acrisio Pires, University of Michigan
Jason Rothman, University of Florida

We investigate the onset of spontaneous production of inflected infinitives in European Portuguese and show that they are productive before age 3, but only in *para* 'for' purpose clauses. This is not due to the absence of input: adult speech in the same files shows a broader distribution of these forms. We argue that the acquisition of the full distribution of inflected infinitives is dependent on the acquisition of (i) null subjects and (ii) the properties of T and C (Raposo 1987, Duarte, Gonçalves & Miguel 2005, Pires 2006). Therefore, children acquire the morphology of the inflected infinitive while they still show protracted acquisition of its licensing conditions. Adult inflected infinitives are licensed when C is null and there is V-to-C, or when an overt complementizer is merged in C (e.g. *para*). The early emergence of *para* purpose clauses is interpreted as a preference for Merge over Move.

Examining the semantics-pragmatics interface: The implications of implicatures

Travis Hasley, University of Iowa

The most recent instantiation of the Interface Hypothesis contends that external interfaces, as opposed to internal ones, are likely to result in *residual optionality* (Sorace and Serratrice 2009), for reasons related more an increased need for processing and attentional resources than deficiencies in linguistic representation itself (e.g. Wilson et al 2009; Sorace and Serratrice 2009). Recent studies at the syntax-pragmatics interface provide some evidence that residual optionality is not inevitable for external interfaces in L2A (e.g. Gürel 2006; Ivanov 2009; Rothman 2009), yet few studies at other external interfaces, for example, the semantics-pragmatics interface, have been realized. The present study investigates the acquisition of scalar implicatures in L2 Spanish. Data collected indicate a trend of improved performance with increased proficiency levels, some advanced and near-native learners have patterned exactly after native speakers, suggesting that the semantics-pragmatics interface is not impossible to overcome.

Acquisition of voicing and vowel alternations in German

Ruben van de Vijver, University of Potsdam
Dinah Baer-Henney, University of Potsdam

We present the results of a study of the acquisition of voicing and vowel alternations in German singular 74 plural pairs. We reach two conclusions. First, we show that voicing alternations, which are grounded phonetically, are learned more easily than vowel alternations, which are not. Second, we show that 5-year-olds store allomorphs as unanalyzed wholes. We conducted two production experiments; in one we asked 20 German 5-year-olds to produce plurals from given singular words and nonces and in another one we asked 10 German 5-year-olds to produce singulars from given plural words and nonces. We analyzed two corpora. In the corpora the alternations occur equally frequent. Evidence for our first conclusion is that children extend voicing alternations rather than vowel alternations in words and nonces. Evidence for the second finding is that children produce singulars from given plural words, but repeat the given singular as plural in nonces.

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Exhibitors' Addresses

Routledge
325 Chestnut Street,
Suite 800,
Philadelphia, PA 19130
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1 Lake Street
Upper Saddle River, NJ 07458
www.pearsonhighered.com

Authors' Addresses

Shanley Allen
University of Kaiserslautern
allen@sowi.uni-kl.de

Ben Ambridge
University of Liverpool
Ben.Ambridge@Liverpool.
ac.uk

Diana Apoussidou
Utrecht University
d.apoussidou@uu.nl

Lauren Applebaum
University of Chicago
lrapplebaum@gmail.com

Maria J. Arche
University of Greenwich
M.J.Arche@greenwich.ac.uk

Inbal Arnon
University of Manchester
inbal.arnon@gmail.com

Fabrizio Arosio
University of Milan - Bicocca
fabrizio.arosio@unimib.it

Sudha Arunachalam
Northwestern University
s-arunachalam@northwestern.
edu

Rachel Ashworth
University of Manchester
rachel.ashworth@manchester.
ac.uk

Tara Augenstein
tara.augenstein@childrens.
harvard.edu

Mireille Babineau
University of Quebec -
Montreal
babineau.mireille@courrier.
uqam.ca

Maria Babyonyshev
Yale University
maria.babyonyshev@yale.edu

Dinah Baer-Henney
University of Potsdam
dinah.baerhenney@
googlemail.com

Tatiana Bagetti
Catholic Pontifical University
of Rio de Janeiro
tatibagetti@gmail.com

Rebecca Baier
University of Maryland -
College Park
rbaier@umd.edu

Sarah Baker
University of Bristol
S.Baker@bristol.ac.uk

Maximilian Bane
University of Chicago
max.bane@gmail.com

David Barner
University of California - San
Diego

Isabelle Barriere
City University of New York -
Brooklyn College
isabelle.barriere@gmail.com

Donn Bayliss
The University of Western
Australia
donna@psy.uwa.edu.au

Alyona Belikova
McGill University
alyona.belikova@mail.mcgill.
ca

Giulia Bencini
City University of New York -
Hunter College
gbencini@hunter.cuny.edu

Iris Berent
Northeastern University
i.berent@neu.edu

Elika Bergelson
University of Pennsylvania
elikab@psych.upenn.edu

Naomi Berlove
Tufts University
nberlove@bu.edu

Ricardo Bion
Stanford University
ricardoh@stanford.edu

Elma Blom
University of Amsterdam
w.b.t.blom@uva.nl

Megan Blossom
University of Kansas
blossom@ku.edu

Jade Bogdanovs
The University of Western
Australia
bogdaj01@student.uwa.edu.au

Natalie Boll-Avetisyan
University of Houston
n.a.t.boll@uu.nl

Melissa Bowerman
Max Planck Institute for
Psycholinguistics
Melissa.Bowerman@mpi.nl

Jeremy Boyd
University of Illinois - Urbana-
Champaign
jkboyd@illinois.edu

Chiara Branchini
University of Milan - Bicocca
chiara.branchini@unimib.it

Chandra Brojde
University of Colorado at
Boulder
chandrab@colorado.edu

Patricia Brosseau-Liard
University of British Columbia
patricia@psych.ubc.ca

Joyce Bruhn de Garavito
University of Wisconsin -
Milwaukee
joycebg@uwo.ca

Jennifer Cabrelli Amaro
University of Florida
jennifer-cabrelli@uiowa.edu

Gonzalo Campos
University of Iowa
gonzalo-campos@uiowa.edu

Gisi Cannizzaro
University of Groningen
c.l.cannizzaro@rug.nl

Chiara Cantiani
University of Milan - Bicocca
c.cantiani@campus.unimib.it

Matthew Carlson
University of Chicago
carlsonmt@uchicago.edu

Leah Casner
Boston University
lcasner@bu.edu

Franklin Chang
University of Liverpool
chang.franklin@gmail.com

Aoju Chen
Max Planck Institute for
Psycholinguistics
aoju.chen@mpi.nl

Jidong Chen
California State University at
Fresno
jchen@csufresno.edu

Pierina Cheung
University of Waterloo
mpcheung@uwaterloo.ca

Solveig Chilla
University of Erfurt
solveig.chilla@uni-erfurt.de

Jinsun Choe
University of Hawaii - Manoa
jschoe@hawaii.edu

Youngon Choi
Chung-Ang University
yochoi@cau.ac.kr

Vasiliki Chondrogianni
University of Reading
v.chondrogianni@reading.
ac.uk

Morten Christiansen
Cornell University
christiansen@cornell.edu

Kaili Clackson
University of Essex
hkscla@essex.ac.uk

Harald Clahsen
University of Essex
harald@essex.ac.uk

Eliana Colunga
University of Colorado at
Boulder
eliana.colunga@colorado.edu

Barbara Conboy
University of Washington
Barbara_Conboy@redlands.
edu

Christopher M. Conway
St Louis University
cconway6@slu.edu

Erin Conwell
Harvard University
econwell@gmail.com

Cynthia Core
George Washington University
core@gwu.edu

Letícia Correa
Catholic University of Louvain
lscorrea@puc-rio.br

Caitlin Coughlin
University of Illinois - Urbana-
Champaign
ccoughl2@illinois.edu

Alejandrina Cristia
Laboratoire de
Sciences Cognitives et
Psycholinguistique
alecristia@gmail.com

Justin Davidson
University of Illinois - Urbana-
Champaign
jdavids2@illinois.edu

Imogen Davidson White
University of Maryland -
College Park
imogen.dw@gmail.com

Elise de Bree
University of Utrecht
e.h.debree@uu.nl

Israel de la Fuente
University of Illinois - Urbana-
Champaign
delafue1@illinois.edu

Ashley de Marchena
University of Connecticut -
Storrs
ashley.de_marchena@uconn.
edu

Audrey Delcenserie
McGill University
Audrey.Delcenserie@mail.
mcgill.ca

Ozlem Ece Demir
University of Chicago
ece@uchicago.edu

Nienke Dijkstra
Radboud University Nijmegen
n.dijkstra@let.ru.nl

James Dixon
University of Connecticut -
Storrs
james.dixon@uconn.edu

Laura Dominguez
University of Southampton
ldo@soton.ac.uk

Wolfgang Dressler
University of Vienna
wolfgang.dressler@univie.
ac.at

Ines Duarte
University of Lisbon
isduarte@sapo.pt

Susan Edwards
University of Reading
s.i.edwards@reading.ac.uk

Inge-Marie Eigsti
University of Connecticut -
Storrs
inge-marie.eigsti@uconn.edu

Aviad Eilam
University of Pennsylvania
eilamavi@ling.upenn.edu

Nancy Eng
City University of New York -
Hunter College
nancyeng@aol.com

Helen Engemann
University of Cambridge
hbe21@cam.ac.uk

Emily Escovar
Northwestern University
emilyescovar2007@u.
northwestern.edu

Maria José Ezeizabarrena
Segurola
University of the Basque
Country
mj.ezeizabarrena@ehu.es

Naomi Feldman
Brown University
naomi_feldman@brown.edu

Naja Ferjan Ramirez
University of California - San
Diego
naja@ling.ucsd.edu

Anne Fernald
Stanford University
afernald@stanford.edu

Alissa Ferry
Northwestern University
alissaferry@u.northwestern.
edu

Suzanne L. Field
Indiana University School of
Medicine
suziefield@gmail.com

Paula Fikkert
Radboud University Nijmegen
p.fikkert@let.ru.nl

Sarah Fish
Boston University
safish@bu.edu

Cynthia Fisher
University of Illinois - Urbana-
Champaign
cfisher@illinois.edu

Janet Fletcher
The University of Western
Australia
jan@psy.uwa.edu.au

Rebecca Foote
University of Illinois - Urbana-
Champaign
rfoote@illinois.edu

Damian Fricker
Indiana University
dfricker@indiana.edu

Xiaolan Fu
Chinese Academy of Sciences
fuxl@psych.ac.cn

Natalia Gagarina
ZAS Berlin
gagarina@zas.gwz-berlin.de

Annie Gagliardi
University of Maryland -
College Park
acg39@umd.edu

Christine E. Gardner
Pennsylvania State University
ceg188@psu.edu

Merrill Garrett
University of Arizona
garrett@email.arizona.edu

Fred Genesee
McGill University
Fred.Genesee@mcgill.ca

Lila Gleitman
University of Pennsylvania
gleitman@psych.upenn.edu

Heather Goad
McGill University
heather.goad@mcgill.ca

Adele Goldberg
Princeton University
adele@princeton.edu

Susan Goldin-Meadow
University of Chicago
sgm@uchicago.edu

Roberta Golinkoff
University of Delaware
roberta@udel.edu

Han Gong
Northwestern University
han.c.gong@gmail.com

Grant Goodall
University of California - San
Diego
goodall@ling.ucsd.edu

Cynthia Goodman
Boston University
cgoodman@bu.edu

Kira Gor
University of Maryland -
College Park
kiragor@umd.edu

Takuya Goro
Ibaraki University
takuya.goro@gmail.com

Louise Goyet
University of Paris V
louise.goyet@gmail.com

Margaret Grace
University of Massachusetts -
Amherst
mgrace@student.umass.edu

Susanne Grassmann
Max Planck Institute for
Evolutionary Anthropology
grassmann@eva.mpg.de

Thomas Griffiths
University of California -
Berkeley
tom_griffiths@berkeley.edu

Elena Grigorenko
Yale University
elena.grigorenko@yale.edu

Angela Grimm
Johann Wolfgang Goethe
Universitat Frankfurt am Main
grimm@em.uni-frankfurt.de

John Grinstead
Ohio State University
grinstead.11@osu.edu

Lydia Grohe
Philipps-University Marburg
lydia.grohe@gmx.de

Theres Gruter
Stanford University
tgruter@stanford.edu

Maria Teresa Guasti
University of Milan - Bicocca
mariateresa.guasti@unimib.it

Alon Hafri
University of Pennsylvania
ahafri@sas.upenn.edu

D. Geoffrey Hall
University of British Columbia
geoff@psych.ubc.ca

Melissa Hansen
Northwestern University
melissa@u.northwestern.edu

Masahiro Hara
Truman State University
mhara@truman.edu

Katherine Harder
Northeastern University
k.harder@neu.edu

Joshua Hartshorne
Harvard University
jkhartshorne@gmail.com

Etsuko Haryu
University of Tokyo
haryu@p.u-tokyo.ac.jp

Travis Hasley
University of Iowa
travis-hasley@uiowa.edu

Marla Hatrak
University of California - San
Diego
mhatrak@gmail.com

Petra Hendriks
University of Groningen
p.hendriks@rug.nl

Anne Hesketh
University of Manchester
anne.hesketh@manchester.
ac.uk

Susan Hespos
Northwestern University
hespos@northwestern.edu

Christopher Hirsch
Massachusetts Institute of
Technology
ckh@mit.edu

Kathy Hirsh-Pasek
Temple University
Khirshpa@temple.edu

Shannon Hoerner
University of Maryland -
College Park
shoerner@umd.edu

Barbara Höhle
University of Potsdam
hoehle@uni-potsdam.de

Lori Holt
Carnegie Mellon University
lholt@andrew.cmu.edu

Bruce Hood
University of Bristol
Bruce.Hood@bristol.ac.uk

Jill Hoover
Indiana University
jillhoov@indiana.edu

Derek M. Houston
Indiana University School of
Medicine
dmhousto@indiana.edu

Dan Hufnagle
Carnegie Mellon University
hufnagle@cmu.edu

Mary Hughes
Boston University
mhughs@bu.edu

Dea Hunsicker
University of Chicago
deash@uchicago.edu

Nereyda Hurtado
Stanford University
nhurtado@stanford.edu

William Idsardi
University of Maryland -
College Park
idsardi@umd.edu

Tania Ionin
University of Illinois - Urbana-
Champaign
tionin@illinois.edu

Maialen Iraola Azpiroz
University of Konstanz
maialen.iraola@uni-konstanz.
de

Carrie N. Jackson
Pennsylvania State University
cnj1@psu.edu

Na-young Jang
Chung-Ang University
ny921@naver.com

Gaja Jarosz
Yale University
gaja.jarosz@yale.edu

Lu Jiang
University of Tokyo
kyoro@p.u-tokyo.ac.jp

Nan Jiang
University of Maryland -
College Park
njiang@umd.edu

Megan Johanson
University of Delaware
majohanson@psych.udel.edu

Caroline Junge
Max Planck Institute for
Psycholinguistics
Caroline.Junge@mpi.nl

Tanya Kaeffer
University of Michigan
ttkaefer@umich.edu

Rene Kager
University of Utrecht
r.w.j.kager@uu.nl

Padmapriya Kandhadai
University of British Columbia
priyak@psych.ubc.ca

Enkeleida Kapia
Boston University
ekapia@bu.edu

Laura Kasparian
Boston University
lkaspar@bu.edu

Hila Katz
University of Pennsylvania
hikatz@sas.upenn.edu

Nina Kazanina
University of Bristol
nina.kazanina@bristol.ac.uk

Paula Kempchinsky
University of Iowa
paula-kempchinsky@uiowa.
edu

Annemarie Kerkhoff
University of Utrecht
a.o.kerkhoff@uu.nl

Nihan Ketrez
Istanbul Bilgi University
ketrez@gmail.com

Manizeh Khan
Harvard University
khan@wjh.harvard.edu

Eunah Kim
University of Illinois - Urbana-
Champaign
ekim39@illinois.edu

Sok-Ju Kim
University of Kansas
sjukim@ku.edu

Yun Jung Kim
University of California - Los
Angeles
yun.ucla@gmail.com

Susannah Kirby
University of British Columbia
suki@ibiblio.org

Minna Kirjavainen
University of Manchester
minna.kirjavainen@
manchester.ac.uk

Tessei Kobayashi
NTT Communication Science
Laboratories
tessei@cslab.kecl.ntt.co.jp

Sergey Kornilov
University of Connecticut -
Storrs
sa.kornilov@gmail.com

Helen Koulidobrova
elena.koulidobrova@
huskymail.uconn.edu

Sarah Kresh
City University of New York -
Graduate Center
sarahkresh@yahoo.ca

Patricia Kuhl
University of Washington
pkuhl@u.washington.edu

Aylin C. Kuntay
Koc University
akuntay@ku.edu.tr

Marlon Kuntze
Boston University
Kuntze@bu.edu

Elaine Lau
University of Hawaii - Manoa
elau@hawaii.edu

Tania Leal Mendez
University of Iowa
tania-leal-mendez@uiowa.edu

Erin Leddon
Northwestern University
e-mcmahon@northwestern.edu

Hwah-in Lee
Chung-Ang University
mori0719@hanmail.net

Sunyoung Lee-Ellis
University of Maryland -
College Park
sunyoung@umd.edu

Tracy Lennertz
Northeastern University
lennertz.t@husky.neu.edu

Tom Lentz
University of Utrecht
t.o.lentz@uu.nl

Susan C. Levine
University of Chicago
s-levine@uchicago.edu

Casey Lew-Williams
University of Wisconsin -
Madison
lewwilliams@wisc.edu

Peggy Li
Harvard University
pegs@wjh.harvard.edu

Jeffrey Lidz
University of Maryland -
College Park
jlidz@umd.edu

Amy Lieberman
University of California - San
Diego
alieberman@ucsd.edu

Elena Lieven
University of Manchester
elena.lieven@manchester.ac.uk

Marie Lippeveld
McGill University
marie.lippeveld@mail.mcgill.
ca

Liquan Liu
University of Utrecht
l.liu@students.uu.nl

Maria Luisa Lorusso
Scientific Institute "E.Medea"
Bosisio Parini (Italy)
marialuisa.lorusso@bp.lnf.it

Anna Lukyanchenko
University of Maryland -
College Park
lav@umd.edu

Cynthia Lukyanenko
University of Illinois - Urbana-
Champaign
lukyane1@illinois.edu

Asifa Majid
Max Planck Institute for
Psycholinguistics
Asifa.Majid@mpi.nl

Nivedita Mani
University of Göttingen
nmani@gwdg.de

Sofia Manika
Utrecht University
sophia.manika@gmail.com

Virginia Marchman
Stanford University
marchman@stanford.edu

Theodoros Marinis
University of Reading
t.marinis@reading.ac.uk

Ana Isabel Mata
University of Lisbon
aim@fl.ul.pt

Rachel Mayberry
University of California - San
Diego
rmayberry@ucsd.edu

Reiko Mazuka
Duke University
mazuka@brain.riken.jp

Dana McDaniel
University of Southern Maine
dana.mcdaniel@usm.maine.
edu

Cecile McKee
University of Arizona
mckee@email.arizona.edu

Tamara Medina
University of Pennsylvania
medinatn@sas.upenn.edu

Andréane Melançon
University of Quebec -
Montreal
andreanemel@yahoo.ca

Iverson Michael
University of Florida
michael-iverson@uiowa.edu

Karen Miller
Pennsylvania State University
kxm80@psu.edu

Toben H. Mintz
University of Southern
California
tmintz@usc.edu

Aaron Mitchel
Pennsylvania State University
adm241@psu.edu

Nadya Modyanova
Massachusetts Institute of
Technology
nnm@mit.edu

Ruggero Montalto
University of Groningen
r.montalto@rug.nl

Silvina Montrul
University of Illinois - Urbana-
Champaign
montrul@illinois.edu

James Morgan
Brown University
james_morgan@brown.edu

Anja Müller
Johann Wolfgang Goethe
Universitat Frankfurt am Main
AnjaMueller@em.uni-
frankfurt.de

Julien Musolino
Rutgers University - New
Brunswick
jumusolino@gmail.com

Emily Myers
University of Connecticut -
Storrs
emily_b_myers@brown.edu

Florence Myles
Newcastle University
florence.myles@newcastle.
ac.uk

Aparna Nadig
McGill University
aparna.nadig@mcgill.ca

Letitia Naigles
University of Connecticut -
Storrs
letitia.naigles@uconn.edu

Rebecca Nappa
Harvard University
rnappa@wjh.harvard.edu

Emily Nava
Rosetta Stone Labs
eanava@gmail.com

Thierry Nazzi
University of Paris V
thierry.nazzi@parisdescartes.fr

Susan Neuman
University of Michigan
sbneuman@umich.edu

Claire Noble
University of Manchester
claire.noble@manchester.ac.uk

Mary Grantham O'Brien
University of Calgary
mgobrien@ucalgary.ca

Timothy O'Donnell
Harvard University
timo@wjh.harvard.edu

Akira Omaki
University of Maryland -
College Park
omakisan@gmail.com

Yuriko Oshima-Takane
McGill University
yuriko@ego.psych.mcgill.ca

Gene Ouellette
Mount Allison University
gouellette@mta.ca

Ozge Ozturk
Max Planck Institute for
Psycholinguistics
ozge.ozturk@mpi.nl

Barbara Zurer Pearson
University of Massachusetts -
Amherst
bpearson@research.umass.edu

Paolo Perego
Scientific Institute "E.Medea"
Bosisio Parini (Italy)
paolo.perego@bp.lnf.it

Alexandra Perovic
University of California - Los
Angeles
perovic@mit.edu

Katherine Petty
University of Chicago
kpetty@uchicago.edu

Colin Phillips
University of Maryland -
College Park
colin@umd.edu

Julian Pine
University of Liverpool
Julian.Pine@Liverpool.ac.uk

Ashley Pinkham
University of Michigan
pinkhama@umich.edu

Acrisio Pires
University of Michigan
pires@umich.edu

Lucia Pozzan
City University of New York -
Graduate Center
lpozzan@gc.cuny.edu

Zhenghan Qi
University of Illinois - Urbana-
Champaign
zqi2@illinois.edu

Erin Quirk
City University of New York -
Graduate Center
EQuirk@gc.cuny.edu

Natalia Rakhlin
Yale University
natalia.rakhlin@yale.edu

Jodi Reich
Yale University
jodi.reich@yale.edu

Jennifer Renn
University of North Carolina -
Chapel Hill
jrenn@email.unc.edu

Caitlin Reynolds
University of Connecticut -
Storrs
caitlin.e.reynolds@uconn.edu

Mabel Rice
University of Kansas
mabel@ku.edu

Thomas Roeper
University of Massachusetts -
Amherst
roeper@linguist.umass.edu

Jason Rothman
University of Florida
jrothman@ufl.edu

Monika Rothweiler
University of Bremen
rothweil@uni-bremen.de

Caroline Rowland
University of Liverpool
Crowland@Liverpool.ac.uk

Jenny Saffran
University of Wisconsin -
Madison
jsaffran@wisc.edu

Ana Lucia Santos
University of Lisbon
als@fl.ul.pt

Helade Santos
University of Illinois - Urbana-
Champaign
hsantos2@illinois.edu

Petra Schulz
Johann Wolfgang Goethe
Universitat Frankfurt am Main
P.Schulz@em.uni-frankfurt.de

Cornelia Schulze
Max Planck Institute for
Evolutionary Anthropology
cornelia_schulze@eva.mpg.de

Hayley Seddon
University of Bristol
hs6982@bristol.ac.uk

Anne Seery
Boston University
amseery@bu.edu

Amanda Seidl
Purdue University
aseidl@purdue.edu

Ludovica Serratrice
University of Manchester
serratrice@manchester.ac.uk

Valerie Shafer
City University of New York -
Graduate Center
vshafer@gc.cuny.edu

Carissa L. Shafto
University of Louisville
carissa.shafto@louisville.edu

Shakila Shayan
Max Planck Institute for
Psycholinguistics
shakila.shayan@mpi.nl

Rushen Shi
University of Quebec -
Montreal
shi.rushen@uqam.ca

Rushen Shi
University of Quebec -
Montreal
shi.rushen@uqam.ca

Yasuhiro Shirai
University of Pittsburgh
yasshiraijp@gmail.com

Laura Shneidman
University of Chicago
lauras@uchicago.edu

Deanna Simeone
Brown University
deanna_simeone@brown.edu

Roumyana Slabakova
University of Iowa
roumyana-slabakova@uiowa.
edu

Carrie Slaton
University of Pennsylvania
cslaton@sas.upenn.edu

Linda Smith
Indiana University
smith4@indiana.edu

Kenny Smith
Northumbria University
kenny@ling.ed.ac.uk

Jesse Snedeker
Harvard University
snedeker@wjh.harvard.edu

David Sobel
Brown University
david_sobel_1@brown.edu

Yuko Sogabe
RIKEN Brain Science Institute
sogabe@brain.riken.jp

Morgan Sonderegger
University of Chicago
morgan@cs.uchicago.edu

Lulu Song
New York University
lulusong@gmail.com

Aimee Stahl
University of Delaware
aimees@udel.edu

Holly Storkel
University of Kansas
hstorkel@ku.edu

Koji Sugisaki
Mie University
sugisaki@human.mie-u.ac.jp

Megha Sundara
University of California - Los
Angeles
megha.sundara@humnet.ucla.
edu

Megan Sutton
University of Maryland -
College Park
suttonm2@umd.edu

Daniel Swingley
University of Pennsylvania
swingley@psych.upenn.edu

Kristen Syrett
Rutgers University - New
Brunswick
k-syrett@ruccs.rutgers.edu

Elena Tenenbaum
Brown University
elena_tenenbaum@brown.edu

Joseph Tepperman
Rosetta Stone Labs
jtepperman@rosettastone.com

Anna Theakston
University of Manchester
anna.theakston@manchester.
ac.uk

Michael Tomasello
Max Planck Institute for
Evolutionary Anthropology
tomasello@eva.mpg.de

Lidiya Tornyova
City University of New York -
Graduate Center
LTornyova@gc.cuny.edu

Annie Tremblay
University of Illinois - Urbana-
Champaign
atrembla@illinois.edu

John Trueswell
University of Pennsylvania
trueswel@psych.upenn.edu

Sharon Unsworth
University of Utrecht
s.unsworth@uu.nl

Virginia Valian
City University of New York -
Hunter College
virginia.valian@hunter.cuny.
edu

Eline van Baal
University of Utrecht
baalvaneline@gmail.com

Grace Van Berkel
Stanford University
gbudde@stanford.edu

Ruben van de Vijver
University of Potsdam
vijver.rubenvande@
googlemail.com

Angeliek van Hout
University of Groningen
a.m.h.van.hout@rug.nl

Spyridoula Varlokosta
University of Athens
svarlokosta@phil.uoa.gr

Nada Vasic
University of Amsterdam
N.Vasic@uva.nl

Mariana Vega-Mendoza
Ohio State University
vega-mendoza.1@osu.edu

Vanessa Vogel-Farley
vanessa.vogel@childrens.
harvard.edu

Yi-Ting Wang
Indiana University
yw7@indiana.edu

Hao Wang
University of Southern
California
haowang@usc.edu

Lamei Wang
Saarland University
wanglm@psych.ac.cn

Nancy Ward
University of California - Los
Angeles
nancyward@ucla.edu

Sandra Waxman
Northwestern University
s-waxman@northwestern.edu

Adriana Weisleder
Stanford University
adrianaw@stanford.edu

Daniel Weiss
Pennsylvania State University
djw21@psu.edu

Ken Wexler
Massachusetts Institute of
Technology
wexler@mit.edu

Katherine White
University of Waterloo
white@uwaterloo.ca

Aaron White
University of Maryland -
College Park
aswhite@umd.edu

Lydia White
McGill University
lydia.white@mcgill.ca

Frank Wijnen
University of Utrecht
F.N.K.Wijnen1@uu.nl

Jon Willits
University of Wisconsin -
Madison
willits@wisc.edu

Elizabeth Wonnacott
University of Oxford
elizabeth.wonnacott@psy.
ox.ac.uk

Ting Xu
University of Connecticut -
Storrs
xuting.thu@gmail.com

Xiaolu Yang
Tsinghua University
xlyang@tsinghua.edu.cn

James Yoon
University of Illinois - Urbana-
Champaign
jyoon@illinois.edu

Chen Yu
Indiana University
chenyu@indiana.edu

YAN YU
City University of New York -
Graduate Center
yanhyu@gmail.com

Sylvia Yuan
University of California -
Berkeley
shyuan@berkeley.edu

Daniel Yurovsky
Indiana University
dyurovsk@indiana.edu

Elena Zaretsky
University of Massachusetts -
Amherst
ezaretsky@comdis.umass.edu
willits@wisc.edu

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W

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